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ASTRONOMICAL

AND

MAGNETICAL AND METEOROLOGICAL

OBSERVATIONS

MADE AT

THE ROYAL OBSERVATORY, GREENWICH,

IN THE YEAR

1867:

UNDER THE DIRECTION OF

GEORGE BIDDELL AIRY, ESQ., M.A. L.L.D. D.C.L.,

ASTRONOMER ROYAL.

PUBLISHED BY ORDER OF THE BOARD OF ADMIRALTY,

IN OBEDIENCE TO HER MAJESTY'S COMMAND.

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FOR HER MAJESTY'S STATIONERY OFFICE.

1869.

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PAGE
(63) No. 34. ε Aquilæ, Correction to Mean N.P.D., *for* +19″·58, *read* +19″·90.

(65) No. 25. 30 Vulpeculæ, Correction to Mean N.P.D., *for* +28″·95, *read* +24″·92.

(66) No. 24. Bradley 2219, Correction to Mean N.P.D., *for* −0″·45, *read* +4″·24.

(71) No. 17. ξ Persei, Correction to Mean N.P.D., *for* +1″·02, *read* +2″·02.

(81) No. 29. 30 Vulpeculæ, Correction to Mean N.P.D., *for* +36″·50, *read* +32″·47.

(98) No. 13. 32 Ceti, Correction to Mean N.P.D., *for* +19″·11, *read* +19″·27.

(99) No. 18. ε Aquilæ, Correction to Mean N.P.D., *for* +17″·85, *read* +17″·84.

(100) No. 33. 61 Ceti, Correction to Mean N.P.D., *for* +18″·25, *read* +17″·87.

(121) Column 3. 32 Ceti, *for* 99°. 37′. 49″·29, *read* 99°. 37′. 49″·45.

(123) Column 1. 61 Ceti, *for* 90°. 59′. 38″·80, *read* 90°. 59′. 38″·42.

(124) Column 4. ξ Persei, *for* 54°. 36′. 10″·85, *read* 54°. 36′. 11″·85.

(126) Column 5. Piazzi VI. 136, *for* 122°. 30′. 29″·91, *read* 122°. 29′. 44″·51.

(135) Column 3. Bradley 2219, June 16, *for* 111°. 49′. 40″·75, *read* 111°. 49′. 45″·43.
Bradley 2219, July 7, *for* 111°. 49′. 38″·26, *read* 111°. 49′. 42″·95.
Bradley 2219, Aug. 26, *for* 111°. 49′. 40″·53, *read* 111°. 49′. 45″·22.

(137) Column 2. ε Aquilæ, July 4, *for* 75°. 6′. 50″·16, *read* 75°. 6′. 50″·13.
Aug. 16, *for* 75°. 6′. 50″·57, *read* 75°. 6′. 50″·89.
Dec. 2, *for* 76°. 6′. 50″·53, *read* 75°. 6′. 50″·82.

(140) Column 4. 30 Vulpeculæ, Aug. 13, *for* 65°. 12′. 57″·01, *read* 65°. 12′. 52″·98.
30 Vulpeculæ, Aug. 20, *for* 65°. 12′. 54″·60, *read* 65°. 12′. 50″·57.
30 Vulpeculæ, Oct. 22, *for* 65°. 12′. 57″·38, *read* 65°. 12′. 53″·35.

3 No. 56. 32 Ceti, Mean N.P.D. 1864, Jan. 1, *for* 99°. 37′. 49″·22, *read* 99°. 37′. 49″·38 : Concluded Seconds of N. P. D., *for* 49″·22, *read* 49″·38.

3 No. 94. 61 Ceti, Mean N. P. D. 1864, Jan. 1, *for* 90°. 59′. 38″·69, *read* 90°. 59′. 38″·31 : Concluded Seconds of N. P. D., *for* 38″·69, *read* 38″·31.

4 No. 136. 93 Ceti, Mean R.A. 1864, Jan. 1, *for* 2^h. 54^m. $15^s·26$, *read* 2^h. 55^m. $15^s·26$.

5 No. 170. ξ Persei, Mean N.P.D. 1864, Jan. 1, *for* 54°. 36′. 10″·76, *read* 54°. 36′. 11″·76 : Concluded Seconds of N.P.D., *for* 10″·76, *read* 11″·76.

7 No. 250. Piazzi VI. 136, Mean N.P.D. 1864, Jan. 1, 122°. 30′. 29″·92, *read* 122°. 29′. 44″·52 : Concluded Seconds of N.P.D., *for* 29″·92, *read* 44″·52.

8 No. 294. 15 Argûs, Mean N.P.D. 1864, Jan. 1, *for* 115°. 54′. 51″·54, *read* 113°. 54′. 51″·54.

13 No. 548. Bradley 2219, Mean N.P.D. 1864, Jan. 1, *for* 111°. 49′. 39″·83, *read* 111°. 49′. 44″·51 : Concluded Seconds of N. P. D., for 39″·83, *read* 44″·51.

14 No. 603. ε Aquilæ, Mean N.P.D. 1864, Jan. 1, *for* 75°. 6′. 50″·28, *read* 75°. 6′. 50″·47 : Concluded Seconds of N.P.D., *for* 50″·28, *read* 50″·47.

15 No. 642. 42 Aquilæ, Mean R.A. 1864, Jan. 1, *for* 19^h. 30^m. $34^s·52$, *read* 19^h. 30^m. $34^s·39$.

16 No. 727. 30 Vulpeculæ, Mean N.P.D. 1864, Jan. 1, *for* 65°. 12′. 56″·20, *read* 65°. 12′. 52″·17 : Concluded Seconds of N.P.D., *for* 56″·20, *read* 52″·17.

21 No. 43. *h* Piscium, Log. g, *for* 145·070, *read* 1·45070.

21 No. 56. 32 Ceti, Value of l^1, *for* 114″·306, *read* 114″·150.

22 No. 94. 61 Ceti, Log. e^1, *for* 9·83404, *read* 9·87950 : Value of l^1, *for* 111″·372, *read* 109″·489.

22 No. 170. ξ Persei, Value of l^1, *for* 87″·216, *read* 86″·216.

PAGE
23 No. 274. 6 Canis Minoris, *for* the constants in N. P. D. printed, *read* log. e^1 = 9·98909, log. f^1 = 0·10539, log. g^1 = 1·50566, log. h^1 = 0·32968, Value of l^1 = 61″·899.

23 No. 548. Bradley 2219, Value of l^1, *for* 118″·433, *read* 113″·747.

24 No. 626. 50 Sagittarii, Log. f, *for* 0·05363, *read* 0·05393 : Value of l, *for* $87^s·039$, *read* $87^s·020$.

24 No. 637. 8 Cygni, Log. e^1, *for* 9·50174, *read* 9·50393 : Log. f^1, *for* 9·99640, *read* 9·99682 : Value of l^1, *for* 149″·388, *read* 149″·324.

24 No. 642. 42 Aquilæ, Log. h, *for* 0·07107, *read* 0·07838 : Value of l, *for* $87^s·643$, *read* $87^s·143$.

25 No. 727. 30 Vulpeculæ, Value of l^1, *for* 145″·195, *read* 149″·225.

26 No. 825. 61 Aquarii, *for* the constants in N.P.D. already printed, *read* log. e' = 9·95847, log. f' = 0·17231, log. g' = 0·81430, log. h' = 9·90917, Value of l' = 121″·998.

GREENWICH OBSERVATIONS, 1865.

[24] No. 10. 37 Ursæ Majoris, Apparent R. A. of center, *for* 10^h. 26^m. $19^s·20$, *read* 10^h. 26^m. $29^s·20$.

[48] No. 42. 4 Serpentis, Correction to Mean R.A., *for* $-2^s·88$, *read* $-2^s·94$.

[49] No. 31. 4 Serpentis, Correction to Mean R.A., *for* $-2^s·87$, *read* $-2^s·93$.

[51] No. 7. 4 Serpentis, Correction to Mean R. A., *for* $-2^s·86$, *read* $-2^s·92$.

[129] Column 5. 37 Ursæ Majoris, *for* 10^h. 26^m. $16^s·60$, *read* 10^h. 26^m. $26^s·60$.

[135] Column 3. 4 Serpentis, June 14, *for* 15^h. 8^m. $56^s·72$, *read* 15^h. 8^m. $56^s·66$.

[135] Column 3. 4 Serpentis, June 16, *for* 15^h. 8^m. $56^s·68$, *read* 15^h. 8^m. $56^s·62$.

[135] Column 3. 4 Serpentis, June 20, *for* 15^h. 8^m. $56^s·70$, *read* 15^h. 8^m. $56^s·64$.

(5) No. 15. Groombridge 120, Correction to Mean N. P. D., *for* +13″·67, *read* +20″·13.

(11) No. 36. μ Orionis, Correction to Mean N.P.D., *for* −17″·56, *read* −11″·56.

(12) No. 9. μ Orionis, Correction to Mean N.P.D., *for* −17″·67, *read* −11″·67.

(28) No. 13. 17 Virginis, Correction to Mean N.P.D., *for* −15″·04, *read* −15″·15.

(31) No. 9. 17 Virginis, Correction to Mean N.P.D., *for* −14″·78, *read* −14″·89.

(42) No. 38. 17 Virginis, Correction to Mean N.P.D., *for* −12″·68, *read* −12″·75.

(60) No. 21. Bradley 2219, Correction to Mean N.P.D., *for* +1″·54, *read* +6″·23.

(64) No. 26. Bradley 2219, Correction to Mean N.P.D., *for* +1″·56, *read* +6″·25.

(81) No. 34. 61 Ceti, Correction to Mean N.P.D., *for* +20″·09, *read* +18″·72.

(88) No. 12. θ Piscium, Correction to Mean N.P.D., *for* +26″·62, *read* +26″·89.

(89) No. 16. Bradley 2619, Correction to Mean N.P.D., *for* +32″·36, *read* +32″·74.

(93) No. 28. Bradley 2581, Correction to Mean N.P.D., *for* +29″·02, *read* +30″·02.

(98) No. 22. Bradley 2619, Correction to Mean N.P.D., *for* +33″·64, *read* +33″·99.

(99) No. 18. Bradley 2581, Correction to Mean N.P.D., *for* +29″·27, *read* +30″·27.

(100) No. 34. θ Piscium, Correction to Mean N.P.D., *for* +27″·38, *read* +27″·65.

(106) No. 17. θ Piscium, Correction to Mean N.P.D., *for* +27″·25, *read* +27″·52.

(107) No. 1. Bradley 2619, Correction to Mean N.P.D., *for* +33″·66, *read* +33″·93.

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(112) No. 4. Bradley 191, Apparent Zenith Distance South, *for* 51°. 33′. 2″·87, *read* 52°. 33′. 2″·87: Refraction, *for* 1′. 15″·61, *read* 1′. 18″·36: Geocentric N.P.D. of Center, *for* 90°. 5′. 40″·28, *read* 91°. 5′. 43″·03.

(112) No. 17. θ Piscium, Correction to Mean N.P.D., *for* +26″·77, *read* +27″·04.

(117) No. 3. 29 Eridani, Correction to Mean N.P.D., *for* +4″·31, *read* +5″·31.

(117) No. 27. ε Aquilæ, Correction to Mean N.P.D., *for* +16″·99, *read* +17″·22.

(134) Column 5. Groombridge 120, *for* 24°. 35′. 30″·01, *read* 24°. 35′. 36″·47.

(136) Column 1. Bradley 191, *for* 91°. 6′. 0″·05, *read* 91°. 6′. 2″·80.

(136) Column 4. 61 Ceti, *for* 90°. 59′. 23″·10, *read* 90°. 59′. 21″·73.

(138) Column 4. 29 Eridani, *for* 95°. 27′. 41″·99, *read* 95°. 27′. 42″·99.

(140) Column 2. μ Orionis, Feb. 20, *for* 80°. 21′. 16″·08, *read* 80°. 21′. 22″·08.

(140) Column 2. μ Orionis, Feb. 24, *for* 80°. 21′. 15″·79, *read* 80°. 21′. 21″·79.

(147) Column 1. 17 Virginis, April 10, *for* 83°. 56′. 36″·43, *read* 83°. 56′. 36″·32.

(147) Column 1. 17 Virginis, April 15, *for* 83°. 56′. 37″·23, *read* 83°. 56′. 37″·12.

(147) Column 1. 17 Virginis, May 15, *for* 83°. 56′. 36″·34, *read* 83°. 56′. 36″·27.

(153) Column 2. Bradley 2219, June 28, *for* 111°. 49′. 42″·82, *read* 111°. 49′. 47″·51.

(153) Column 2. Bradley 2219, July 5, *for* 111°. 49′. 40″·04, *read* 111°. 49′. 44″·73.

(155) Column 2. ε Aquilæ, *for* 75°. 6′. 43″·83, *read* 75°. 6′. 44″·06.

(158) Column 1. Bradley 2581, Oct. 4, *for* 69°. 15′. 55″·28, *read* 69°. 15′. 56″·28.

(158) Column 1. Bradley 2581, Oct. 13, *for* 69°. 15′. 55″·50, *read* 69°. 15′. 56″·50.

(158) Column 3. Bradley 2619, Sept. 27, *for* 53°. 17′. 27″·02, *read* 53°. 17′. 27″·40.

(158) Column 3. Bradley 2619, Oct. 12, *for* 53°. 17′. 27″·93, *read* 53°. 17′. 28″·28.

(158) Column 3. Bradley 2619, Nov. 4, *for* 53°. 17′. 27″·60, *read* 53°. 17′. 27″·87.

(165) Column 1. θ Piscium, Sept. 25, *for* 84°. 21′. 44″·77, *read* 84°. 21′. 45″·04.

(165) Column 1. θ Piscium, Oct. 19, *for* 84°. 21′. 45″·31, *read* 84°. 21′. 45″·58.

(165) Column 1. θ Piscium, Nov. 3, *for* 84°. 21′. 44″·92, *read* 84°. 21′. 45″·19.

(165) Column 1. θ Piscium, Nov. 17, *for* 84°. 21′. 44″·51, *read* 84°. 21′. 44″·78.

2 No. 33. Groombridge 120, Mean N.P.D. 1865, Jan. 1, *for* 24°. 35′. 30″·13, *read* 25°. 35′. 36″·59: Concluded Seconds of N.P.D., *for* 30″·13, *read* 36″·59.

3 No. 59. Bradley 191, Mean N.P.D. 1865, Jan. 1, *for* 91°. 5′. 59″·79, *read* 91°. 6′. 2″·54: Concluded Seconds of N.P.D., *for* 59″·79, *read* 2″·54.

3 No. 84. 61 Ceti, Mean N.P.D. Jan. 1, *for* 90°. 59′. 22″·83, *read* 90°. 59′. 21″·46: Concluded Seconds of N.P.D. *for* 22″·83, *read* 21″·46.

5 No. 165. 29 Eridani, Mean N.P.D. 1865, Jan. 1, *for* 95°. 27′. 41″·76, *read* 95°. 27′. 42″·76: Concluded Seconds of N.P.D., *for* 41″·76, *read* 42″·76.

6 No. 234. μ Orionis, Mean N.P.D. 1865, Jan. 1, *for* 80°. 21′. 15″·61, *read* 80°. 21′. 21″·61: Concluded Seconds of N.P.D., *for* 15″·61, *read* 21″·61.

10 No. 408. 37 Ursæ Majoris, Mean R.A. 1865, Jan. 1, *for* 10ʰ. 26ᵐ. 16ˢ·60, *read* 10ʰ. 26ᵐ. 26ˢ·60.

11 No. 485. 17 Virginis, Mean N.P.D. 1865, Jan. 1, *for* 83°. 56. 36″·37, *read* 83°. 56′. 36″·27: Concluded Seconds of N.P.D., *for* 36″·37, *read* 36″·27.

PAGE
12 No. 499. *f* Virginis, Mean N.P.D. 1865, Jan. 1, *for* 90°. 5′. 15″·65, *read* 95°. 5′. 15″·65.

14 No. 617. 4 Serpentis, Mean R.A. 1865, Jan. 1, *for* 15ʰ. 8ᵐ. 56ˢ·70, *read* 15ʰ. 8ᵐ. 56ˢ·64.

16 No. 715. Bradley 2219, Mean N.P.D. 1865, Jan. 1, *for* 111°. 49′. 41″·33, *read* 111°. 49′. 46″·02: Concluded Seconds of N.P.D., *for* 41″·33, *read* 46″·02.

17 No. 778. ε Aquilæ, Mean N.P.D. 1865, Jan. 1, *for* 75°. 6′. 43″·50, *read* 75°. 6′. 43″·73: Concluded Seconds of N.P.D., *for* 43″·50, *read* 43″·73.

19 No. 877. Bradley 2581, Mean N.P.D. 1865, Jan. 1, *for* 69°. 17′. 55″·07, *read* 69°. 15′. 56″·07: Concluded Seconds of N.P.D., *for* 55″·07, *read* 56″·07.

20 No. 893. Bradley 2619, Mean N.P.D. 1865, Jan. 1, *for* 53°. 17′. 27″·30, *read* 53°. 17′. 27″·63: Concluded Seconds of N.P.D., *for* 27″·30, *read* 27″·63.

25 No. 1126. θ Piscium, Mean N.P.D. 1865, Jan. 1, *for* 84°. 21′. 44″·58, *read* 84°. 21′. 44″·85: Concluded Seconds of N.P.D., *for* 44″·58, *read* 44″·85.

26 No. 165. 29 Eridani, Value of l^1, *for* 94″·930, *read* 93″·930.

27 No. 234. μ Orionis, Value of l^1, *for* 78″·126, *read* 72″·126.

28 No. 310. 1 Hydræ, Log. f^1, *for* 0·06117, *read* 0·06717: Value of l^1, *for* 69″·012, *read* 68″·611.

28 No. 326. Bradley 1245, Log. g, *for* 1·45791, *read* 1·45867: Value of l, *for* 86ˢ·062, *read* 86ˢ·002.

30 No. 485. 17 Virginis Log. e^1, *for* 9·88525, *read* 9·88156: Value of l^1, *for* 75″·875, *read* 76″·037.

31 No. 617. 4 Serpentis, Log. g, *for* 1·44649, *read* 1·44804: Value of l, *for* 88ˢ·825, *read* 88ˢ·705.

32 No. 877. Bradley 2581, Value of l^1, *for* 147″·177, *read* 146″·177.

33 No. 893. Bradley 2619, Log. e^1, *for* 9·57357, *read* 9·54974: Value of l^1, *for* 153″·070, *read* 153″·570.

54 Mnemosyne, Apparent Error of Tables in N.P.D., *for* −12″·02, *read* −14″·02.

GREENWICH OBSERVATIONS, 1866.

Errata in Observations for 1866: *dele* the correction on page (101).

[13] No. 11. 49 Persei, Correction to Mean R.A., *for* −1ˢ·36, *read* −1ˢ·57.

[13] No. 47. 49 Persei, Correction to Mean R.A., *for* −1ˢ·34, *read* −1ˢ·55.

[14] No. 7. Bradley 635, Correction to Mean R.A., *for* −1ˢ·02, *read* −1ˢ·16.

[16] No. 33. 49 Persei, Correction to Mean R.A., *for* −1ˢ·16, *read* −1ˢ·37.

[16] No. 42. Bradley 635, Correction to Mean R.A., *for* −0ˢ·88, *read* −1ˢ·02.

[25] No. 28. 1 Aurigæ, Correction to Mean R.A., *for* −1ˢ·16, *read* −1ˢ·08.

[37] No. 27. ξ Leonis, *dele* the numbers in the last two columns.

[37] No. 31. ε Leonis, Name of Observer, *for* C, *read* JC: Transfer the "Adopted Clock Slow" to the line next below.

[44] No. 46. 23 Leonis Minoris, Correction to Mean R.A., *for* −1ˢ·49, *read* −1ˢ·39.

[50] No. 44. 16 Can. Ven., Correction to Mean R.A., *for* −2ˢ·34, *read* −1ˢ·89.

[53] No. 15. Bradley 1730, Wire IV., *for* 5ˢ·5, *read* 3ˢ·5: Concluded Transit over Center Wire, *for* 12ʰ. 47ᵐ. 3ˢ·77, *read* 12ʰ. 47ᵐ. 3ˢ·37: Seconds of Transit corrected, *for* 9ˢ·44, *read* 9ˢ·04: Apparent R.A. of Center, *for* 12ʰ. 48ᵐ. 5ˢ·65, *read* 12ʰ. 48ᵐ. 5ˢ·25.

[53] No. 16. Bradley 1731, Wire VI., *for* 3ˢ·5, *read* 5ˢ·5: Concluded Transit over Center Wire, *for* 12ʰ. 47ᵐ. 10ˢ·39, *read* 12ʰ. 47ᵐ. 10ˢ·78: Seconds of Transit corrected, *for* 16ˢ·06, *read* 16ˢ·45: Apparent R.A. of Center, *for* 12ʰ. 48ᵐ. 12ˢ·27, *read* 12ʰ. 48ᵐ. 12ˢ·66.

[54] No. 8. 16 Can Ven., Correction to Mean R.A., *for* −2ˢ·28, *read* −1ˢ·83.

[66] No. 26. * N.P.D. 57°. 26′, Correction to Mean R.A., *for* −2ˢ·37, *read* −3ˢ·07.

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ERRATA.

PAGE

15 No. 659. 23 Leonis Minoris, Mean R.A. 1866, Jan. 1, *for* $10^h.8^m.37^s{\cdot}23$, *read* $10^h.8^m.37^s{\cdot}33$.

18 No. 810. ψ Virginis, Mean N.P.D. 1866, Jan. 1, *for* 94°. 48′. 38″·08, *read* 98°. 48′. 38″·08.

18 No. 811. Bradley 1730, Mean R.A. 1866, Jan. 1, *for* $12^h.48^m.3^s{\cdot}39$, *read* $12^h.48^m.2^s{\cdot}99$.

18 No. 812. Bradley 1731, Mean R.A. 1866, Jan. 1, *for* $12^h.48^m.10^s{\cdot}01$, *read* $12^h.48^m.10^s{\cdot}40$.

18 No. 822. 16 Can. Ven., Mean R.A. 1866, Jan. 1, *for* $13^h.3^m.51^s{\cdot}35$, *read* $13^h.3^m.51^s{\cdot}80$.

22 No. 1033. Bradley 2219. Mean N.P.D., 1866, Jan. 1, *for* 111°. 49′. 43″·21, *read* 111°. 49′. 47″·90: Concluded Seconds of N.P.D., *for* 43″·21, *read* 47″·90.

24 No. 1096. ϵ Aquilæ, Mean N.P.D., 1866, Jan. 1, *for* 75°. 6′. 40″·93, *read* 75°. 6′. 40″·97: Concluded Seconds of N.P.D., *for* 40″·93, *read* 40″·97.

24 No. 1120. 42 Aquilæ, Mean R.A., 1866, Jan. 1, *for* $19^h.30^m.40^s{\cdot}95$, *read* $19^h.30^m.40^s{\cdot}78$.

24 No. 1128. * N.P.D. 57°. 26′., Mean R.A., 1866, Jan. 1, *for* $19^h.41^m.27^s{\cdot}65$, *read* $19^h.41^m.26^s{\cdot}95$.

25 No. 1156. Bradley 2518, Mean N.P.D., 1866, Jan. 1, *for* 69°. 15′. 44″·58, *read* 69°. 15′. 45″·58: Concluded Seconds of N.P.D., *for* 44″·58, *read* 45″·58.

27 No. 1268. 39 Aquarii, Mean N.P.D., 1866, Jan. 1, *for* 104°. 51′. 8″·42, *read* 104°. 51′. 8″·83: Concluded Seconds of N.P.D., *for* 8″·42, *read* 8″·83.

28 No. 1324. θ Piscium, Mean N.P.D., 1866, Jan. 1, *for* 84°. 21′. 24″·46, *read* 84°. 21′. 24″·73: Concluded Seconds of N.P.D., *for* 24″·46, *read* 24″·73.

28 No. 1329. Bradley 3127, Mean N.P.D., 1866, Jan. 1, *for* 111°. 59′. 22″·58, *read* 111°. 59′. 17″·58: Concluded Seconds of N.P.D., *for* 22″·58, *read* 17″·58.

29 No. 1342. 77 Pegasi, Mean R.A., 1866, Jan. 1, *for* $23^h.36^m.33^s{\cdot}31$, *read* $23^h.36^m.33^s{\cdot}21$.

29 No. 1357. Bradley 3187, Mean R.A., 1866, Jan. 1, *for* $23^h.50^m.13^s{\cdot}65$, *read* $23^h.50^m.13^s{\cdot}75$.

31 No. 169. 11 Trianguli, Log. e′, *for* 0·05442, *read* 0·05115: Value of l′, *for* 107″·735, *read* 107″·948.

31 No. 266. A Persei, Log. e′, *for* 0·19882, *read* 0·19468: Value of l′, *for* 83″·393, *read* 83″·768.

31 No. 277. 49 Persei, Log. h, *for* 0·08010, *read* 0·08835: Value of l, *for* $82^s{\cdot}324$, *read* $81^s{\cdot}748$.

32 No. 318. Bradley 635, Log. h, *for* 0·07283, *read* 0·07855: Value of l, *for* $84^s{\cdot}664$, *read* $84^s{\cdot}272$.

32 No. 335. 1 Aurigæ, Value of l, *for* $82^s{\cdot}137$, *read* $82^s{\cdot}057$.

32 No. 346. 4 Aurigæ, Log. h, *for* 0·08796, *read* 0·08472: Value of l, *for* $81^s{\cdot}878$, *read* $82^s{\cdot}106$.

32 No. 353. 9 Aurigæ, Log. e′, *for* 0·23007, *read* 0·22557: Value of l′, *for* 65″·492, *read* 65″·930.

33 No. 448. 14 Geminorum, Log. g, *for* 1·45742, *read* 1·45642: Value of l, *for* $83^s{\cdot}997$, *read* $84^s{\cdot}076$.

33 No. 454. 11 Monocerotis, Log. f′, *for* 0·03433, *read* 0·07489: Log. g′, *for* 1·43865, *read* 1·43058: Value of l′, *for* 78″·891, *read* 76″·848.

34 No. 533. ω^3 Cancri, Value of l′, *for* 51″·915, *read* 51″·795.

35 No. 648. Star's name, *for* u^2 Hydræ, *read* v^3 Hydræ.

35 No. 659. 23 Leonis Minoris, Log. e, *for* 0·04701, *read* 0·05381: Log. f, *for* 0·09526, *read* 0·09200: Value of l, *for* $87^s{\cdot}743$, *read* $87^s{\cdot}536$.

36 No. 822. 16 Can. Ven., Log. h, *for* 0·07727, *read* 0·05968: Value of l, *for* $89^s{\cdot}478$, *read* $90^s{\cdot}663$.

37 No. 1128. * N.P.D. 57°. 26′., Log. e, *for* 0·06673, *read* 0·09128: Log. h, *for* 0·07252, *read* 0·08575: Value of l, *for* $90^s{\cdot}334$, *read* $87^s{\cdot}724$.

38 No. 1268. 39 Aquarii, Value of l′, *for* 125″·315, *read* 124″·905.

38 No. 1329. Bradley 3127, Value of l′, *for* 111″·987, *read* 116″·987.

38 No. 1342. 77 Pegasi, Value of l, *for* $84^s{\cdot}454$, *read* $84^s{\cdot}554$.

38 No. 1357. Bradley 3187, Log. f, *for* 0·07838, *read* 0·07123: Value of l, *for* $61^s{\cdot}650$, *read* $62^s{\cdot}139$.

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[5] No. 1. 47 Geminorum, Correction to Mean R.A., *for* $-1^s{\cdot}49$, *read* $-1^s{\cdot}57$.

[6] No. 37. Lalande 14524, Correction to Mean R.A., *for* $-1^s{\cdot}57$, *read* $-1^s{\cdot}50$.

[7] No. 38. 47 Geminorum, Correction to Mean R.A., *for* $-1^s{\cdot}49$, *read* $-1^s{\cdot}57$.

[8] No. 19. 47 Geminorum, Correction to Mean R.A., *for* $-1^s{\cdot}48$, *read* $-1^s{\cdot}56$.

[10] No. 6. 47 Geminorum, Correction to Mean R.A., *for* $-1^s{\cdot}42$, *read* $-1^s{\cdot}49$.

[17] No. 2. 23 Leonis Minoris, Correction to Mean R.A., *for* $-1^s{\cdot}86$, *read* $-1^s{\cdot}55$.

[18] No. 12. 23 Leonis Minoris, Correction to Mean R.A., *for* $-1^s{\cdot}84$, *read* $-1^s{\cdot}53$.

[20] No. 33. 19 Canum Venaticûm, Correction to Mean R.A., *for* $-1^s{\cdot}86$, *read* $-1^s{\cdot}72$.

[21] No. 15. 23 Leonis Minoris, Correction to Mean R.A. *for* $-1^s{\cdot}71$, *read* $-1^s{\cdot}44$.

[21] No. 38. 23 Leonis Minoris, Correction to Mean R.A., *for* $-1^s{\cdot}69$, *read* $-1^s{\cdot}42$.

[24] No. 32. 23 Leonis Minoris, Correction to Mean R.A., *for* $-1^s{\cdot}56$, *read* $-1^s{\cdot}32$.

[25] No. 7. 23 Leonis Minoris, Correction to Mean R.A., *for* $-1^s{\cdot}50$, *read* $-1^s{\cdot}29$.

[36] No. 38. 19 Canum Venaticûm, Correction to Mean R.A., *for* $-1^s{\cdot}75$, *read* $-1^s{\cdot}53$.

[50] No. 27. ψ^2 Draconis, Correction to Mean R.A., *for* $-9^s{\cdot}10$, *read* $-3^s{\cdot}19$.

[51] No. 26. ψ^2 Draconis, Correction to Mean R.A., *for* $-8^s{\cdot}78$, *read* $-2^s{\cdot}87$.

[51] No. 37. ψ^2 Draconis, Correction to Mean R.A., *for* $-8^s{\cdot}68$, *read* $-2^s{\cdot}77$.

[70] No. 12. Name of Star, *for* g^2 Cygni, *read* g^1 Cygni.

[87] No. 34. 28 Cephei, Correction to Mean R.A., *for* $-5^s{\cdot}37$, *read* $-3^s{\cdot}56$.

[94] No. 6. Niobe, Dele the observation, which is not of the planet.

[141] Column 1. 28 Cephei, *for* $22^h.25^m.39^s{\cdot}06$, *read* $22^h.25^m.40^s{\cdot}87$.

[139] Column 4. g^2 Cygni, Name of Star, *for* g^2 Cygni, *read* g^1 Cygni.

[142] Column 2. 16 Piscium, *for* $23^h.29^m.35^s{\cdot}76$, *read* $23^h.29^m.36^s{\cdot}06$.

(2) No. 1. 11 Trianguli, Correction to Mean N.P.D., *for* $+2''{\cdot}62$, *read* $+2''{\cdot}59$.

(2) No. 13. A Persei, Correction to Mean N.P.D., *for* $+1''{\cdot}63$, *read* $+1''{\cdot}43$.

(4) No. 16. 11 Trianguli, Correction to Mean N.P.D., *for* $+2''{\cdot}49$, *read* $+2''{\cdot}42$.

(6) No. 24. κ^2 Tauri, Correction to Mean N.P.D., *for* $-6''{\cdot}84$, *read* $-6''{\cdot}02$.

(11) No. 22. 9 Aurigæ, Correction to Mean N.P.D., *for* $+2''{\cdot}39$, *read* $+2''{\cdot}10$.

(14) No. 9. Bradley 912, Correction to Mean N.P.D., *for* $-5''{\cdot}10$, *read* $-5''{\cdot}16$.

(14) No. 31. Bradley 889, Correction to Mean N.P.D., *for* $-19''{\cdot}60$, *read* $-19''{\cdot}70$.

(48) No. 13. Groombridge 2533, Correction to Mean N.P.D., *for* $+14''{\cdot}04$, *read* $+10''{\cdot}33$.

(49) No. 15. Oeltz. Arg. 15028, Correction to Mean N.P.D., *for* $-1''{\cdot}75$, *read* $-1''{\cdot}59$.

(51) No. 16, &c. Groombridge 2533, Correction to Mean N.P.D., *for* $+20''{\cdot}24$, *read* $+15''{\cdot}98$.

(52) No. 3, &c. Groombridge 2533, Correction to Mean N.P.D., *for* $+21''{\cdot}16$, *read* $+16''{\cdot}82$.

(54) No. 12. Groombridge 2533, Correction to Mean N.P.D., *for* $+23''{\cdot}49$, *read* $+18''{\cdot}94$.

(55) No. 25. Groombridge 2533, Correction to Mean N.P.D., *for* $+25''{\cdot}38$, *read* $20''{\cdot}65$.

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(63) No. 26. 39 Aquarii, Correction to Mean N.P.D., *for* +20″·93, *read* +21″·34.

(69) No. 25. ϵ Aquilæ, Correction to Mean N.P.D., *for* +22″·67, *read* +23″·14.

(76) No. 10. Name of Star, *for* g^2 Cygni, *read* g^1 Cygni.

(104) No. 35. Niobe, Dele the observation, which is not of the planet.

23 No. 1045. 28 Cephei, Mean R.A., 1867, Jan. 1, *for* $22^h.\ 25^m.\ 39^s{\cdot}06$, *read* $22^h.\ 25^m.\ 40^s{\cdot}87$.

24 No. 1080. 16 Piscium, Mean R.A., 1867, Jan. 1, *for* $23^h.\ 29^m.\ 35^s{\cdot}76$, *read* $23^h.\ 29^m.\ 36^s{\cdot}06$.

59 Venus, May 8: Error of tables in Geocentric Longitude, *for* −0″·17, *read* −0″·26: Error of tables in Hel. E. P. D., *for* −0″·62, *read* −0″·26.

78 Column "Clock or Chronometer." Nov. 2 and 6, *for* J. C. *read* T. C.

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{xlvi} No. 607. Name, *for* Piazzi VII. 267, *read* Piazzi VII. 277.

{xlvii} No. 607. Column "Hour and No. in Piazzi," *for* 267, *read* 277.

{lv} No. 780. .... Log. e′, *for* 9·99786, *read* 9·97786.

{lix} No. 848. Piazzi X. 199, Log f′, *for* 9·80394, *read* 9·80217: Value of l′, *for* 86″·806, *read* 86″·871.

{lxviii} No. 1078. 75 Virginis, Log. h, *for* 0·08591, *read* 0·08501.

{lxxiii} No. 1122. 9 Boötis, Log. g′, *for* 1·63220, *read* 1·63127: Value of l′, *for* 84″·675, *read* 84″·774.

{lxxvi} No. 1237. 39 Libræ, Log. f, *for* 0·08712, *read* 0·05712.

{xciii} No. 1538. ϵ Aquilæ. } Transfer the whole of the Constants in N.P.D.: those printed for ϵ Aquilæ belong to No. 1539; those printed for No. 1539 belong to ϵ Aquilæ.
No. 1539. ... }

{cxv} No. 1963. θ Piscium, Value of l′, *for* 131″·859, *read* 131″·589.

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GREENWICH
ASTRONOMICAL OBSERVATIONS,
1867.

INTRODUCTION.

I. *Personal Establishment and Arrangements.*

During the year 1867, the establishment of Assistants in the Astronomical Department of the Observatory consisted of the following persons:—Edward James Stone, Esq., M.A., F.R.S., Fellow of Queens' College, Cambridge, First Assistant; Mr. Edwin Dunkin, Mr. William Ellis, Mr. George Stickland Criswick, Mr. William Thynne Lynn, B.A. Univ. London, and Mr. James Carpenter.

The duties of the establishment are distributed in the following manner:—

The First Assistant, in the absence of the Astronomer Royal, is empowered to act in all respects as his representative, and to conduct confidential as well as routine business. In the ordinary transactions, the First Assistant superintends the calculations generally; and observes, occasionally, with any of the instruments. The observations made by Mr. Stone are distinguished by the signature S.

Mr. Dunkin has the superintendence of the Altazimuth, which is specially devoted to extrameridional observations of the Moon. The observations necessary for the determination of the errors of division, of the form of the pivots, and of the flexure of the telescope of the Transit-Circle, have been also made by Mr. Dunkin. The ordinary observations with both these instruments have been generally made by Mr. Dunkin, Mr. Ellis, Mr. Criswick, and Mr. Carpenter; occasionally observations have been made by Mr. Lynn. The initials of these observers are D., E., C., J.C., and L. Other persons who have occasionally observed with these instruments are:—Mr. Ernest Augustus John Kerschner, Mr. Thomas Wright, Mr. William Plummer, Mr. Henry James Carpenter, and Mr. Gabriel Keating, who are employed as computers in the Observatory; their signatures are K., W., P., H.C., and G.K.

The management of the Galvanic Apparatus for Chronographic Registry of Transits, movement of sympathetic clocks, and external distribution of time-signals; the receiving, issuing, and rating of Chronometers; the raising of the Time-Signal Ball at 1 o'clock; and the computations belonging to the same; are intrusted to Mr. Ellis.

With regard to the Reduction of the Observations.—The First Assistant is always charged with the duty of making the examination of observations, as entered in the

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clear aperture of the object-glass is about 8 inches. The length of the axis between the extremities of the pivots is 6 feet. The axis of the instrument is of cast iron, in two similar pieces: each half includes half the central cube, one cone, and the pivot which terminates it. The mould of the pivot was made of iron, for the purpose of hardening it by the process technically called *chilling*; the moulds for the other parts were sand. The two halves are connected by bolts through flanges at the junction-plane in the middle of the cube. The two portions of the telescope-tube (also of cast iron, with the exception of the object-glass cell and the eyepiece work) are bolted on the cube. The diameter of each pivot is 6 inches. For examination of the form of the pivots, each is perforated; within the hollow of the eastern pivot there is fixed a plate of metal perforated with a very small hole, behind which a light can be placed for illumination; and in the hollow of the western pivot there is fixed an object-glass at a distance from the perforated plate equal to its focal length. This combination forms a collimator revolving with the instrument. It is viewed by a telescope of 7 feet focal length, which, when required, is placed on Y's, one of them planted in the opening of the western pier, and the other in a hole made for that purpose in the western wall of the room.

On 1866, June 28, observations were made for the determination of the relative errors of the form of the pivots of the Transit-Circle. The process employed is fully explained in Appendix I. of the volume of *Greenwich Observations* for 1852, or in the Description of the Transit-Circle attached to the present volume, page 20, &c.

The following table contains the residual errors, which define the apparent changes of position of a certain imaginary line in the material axis of the instrument.

N. P. D. Pointer Reading.	Error at Inclination of 45° Micrometer Head Above and South.	Error at Inclination of 45° Micrometer Head Above and North	N. P. D. Pointer Reading.	Error at Inclination of 45° Micrometer Head Above and South.	Error at Inclination of 45° Micrometer Head Above and North.	N. P. D. Pointer Reading.	Error at Inclination of 43° Micrometer Head Above and South.	Error at Inclination of 45° Micrometer Head Above and North.	N. P. D. Pointer Reading.	Error at Inclination of 45° Micrometer Head Above and South.	Error at Inclination of 45° Micrometer Head Above and North.
° ′	″	″	° ′	″	″	° ′	″	″	° ′	″	″
2. 30	+0·09	+0·61	92. 30	+0·39	−0·74	182. 30	+0·20	−0·08	272. 30	+0·29	+0·60
7. 30	−0·28	+1·02	97. 30	+0·34	−0·54	187. 30	−0·36	−0·13	277. 30	+0·50	+0·36
12. 30	−0·60	+0·62	102. 30	+0·18	−0·43	192. 30	−0·35	−0·32	282. 30	+0·27	−0·38
17. 30	−0·26	+0·72	107. 30	+0·15	+0·18	197. 30	−0·48	−0·28	287. 30	+0·06	−0·14
22. 30	−0·02	+0·28	112. 30	−0·07	+0·44	202. 30	−0·09	−0·50	292. 30	0·00	+0·20
27. 30	+0·07	+0·73	117. 30	−0·22	+0·07	207. 30	+0·14	−0·29	297. 30	+0·02	+0·23
32. 30	−0·04	+0·25	122. 30	−0·19	−0·42	212. 30	+0·13	−0·07	302. 30	+0·01	+0·31
37. 30	−0·27	+0·01	127. 30	−0·16	−0·59	217. 30	−0·42	+0·19	307. 30	−0·01	+0·05
42. 30	−0·38	+0·01	132. 30	−0·08	−0·12	222. 30	−0·57	+0·22	312. 30	−0·08	−0·34
47. 30	−0·35	+0·23	137. 30	−0·17	+0·28	227. 30	−0·37	−0·18	317. 30	−0·28	−0·66
52. 30	+0·16	+0·18	142. 30	−0·23	+0·57	232. 30	+0·13	+0·20	322. 30	−0·11	−0·56
57. 30	+0·24	−0·08	147. 30	−0·01	+0·13	237. 30	+0·18	+0·06	327. 30	−0·01	+0·21
62. 30	+0·09	−0·09	152. 30	−0·03	−0·31	242. 3c	+0·21	−0·19	332. 30	+0·20	+0·50
67. 30	0·00	−0·24	157. 30	−0·11	−0·49	247. 30	−0·17	−0·18	337. 30	+0·17	+0·30
72. 30	−0·35	−0·05	162. 30	+0·18	−0·62	252. 30	−0·45	−0·13	342. 30	+0·74	−0·66
77. 30	−0·49	−0·12	167. 30	+0·27	+0·20	257. 30	−0·43	+0·17	347. 30	+1·00	−0·82
82. 30	−0·03	−0·50	172. 30	+0·46	+0·30	262. 30	−0·13	+1·36	352. 30	+0·59	−0·57
87. 30	+0·07	−0·38	177. 30	+0·48	+0·55	267. 30	+0·25	+0·41	357. 30	+0·55	−0·56

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These observations agree with those previously made, in not assigning any appreciable error to the form of the pivots.

The wire frame contained originally (besides the horizontal wire, to be noticed shortly) seven vertical wires, adapted to observations of transits by eye-and-ear; to which six were added in the spring of 1854, for more convenient use in the observations of transits by galvanic contact: the whole frame and whole system of vertical wires are moved horizontally by a micrometer-screw, whose graduated head is locked up in a small box attached to the eyepiece, to prevent inadvertent disturbance of the micrometer after it has been set to the reading which is adopted for the line of collimation. The micrometer-head is on the eastern side of the eyepiece, and the readings increase as the wire is moved towards the micrometer-head. The field of view is illuminated by the light from a central gas-light (to be mentioned hereafter), which enters the axis and is reflected by an internal annular reflector; by inclining the reflector, the illumination is diminished and finally destroyed; and by inclining it still more, the light is thrown in such a manner as to illuminate the wires, leaving the field dark. The intensity of illumination of the wires was, in the original construction of the apparatus, practically constant: but in 1865, October, an apparatus was introduced by which the intensity of the light is graduated with great delicacy.

For determining the error of collimation, two horizontal telescopes of about 6 feet 10 inches focal length and 7 inches aperture, with their object-glasses turned towards the center of the instrument, are mounted on Y's which are carried by massive brick piers, one on the north and one on the south side of the transit-circle. The height of the axes of these telescopes is as nearly as possible the same as that of the axis of the transit-circle. External reflectors are provided, by which the light of the sky is directed into the eye-ends of these reversed telescopes. Each telescope is furnished with wires in its principal focus, to be used as collimating marks; and each telescope may be used as presenting a distinct mark for the other, or for the transit-circle-telescope. The system of wires is the same in both, consisting of two parallel wires inclined to the vertical at an angle of about $2\frac{3}{4}^{\circ}$, two other parallel wires at right angles to the former, and therefore inclined to the horizontal line at the same angle (the intersection of this pair with the former producing a square), and a fifth wire parallel to the two last mentioned, and at a distance from the nearest of about ten times the side of the square. The middle of that portion of the fifth wire which is included by the two nearly vertical wires, is in the same vertical with the middle of one of the nearly vertical sides of the square; and these middle points are the points adopted for observation. Those wires are finer than the others. For adjustment of these North and South Reversed Telescopes accurately on each other, the plates carrying the wires are moveable by micrometer-screws: that of the South Telescope in altitude only, and that of the North Telescope in azimuth only. Each micrometer-head, when not in use, is locked up in a box attached to the eyepiece. In order to view either telescope by the transit-circle-telescope, it is only necessary to direct the transit-circle-telescope towards that telescope; but in order to view one telescope by the other

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There are two clamps attached to the eastern pier, at the same height as the center of the circle (one on the north side, the other on the south side), which can take hold of the clamping circle of the instrument; but they have no slow motion. The eyepiece of the telescope contains only one horizontal wire, moveable by a micrometer, with which all observations of zenith-distance are made. For reducing every observation, therefore, it is necessary to combine the value of the reading of the telescope-micrometer with that of the mean of readings of the microscope-micrometers. When the telescope points vertically upwards, the head of the telescope-micrometer is on the north side; and the telescope-micrometer-readings increase as the wire is moved towards the head. The reading $20^{rev.}$ corresponds nearly to the center of the field of view.

The reading (consisting of the combination of telescope-micrometer-reading and mean of microscope-readings), corresponding to the nadir-position of the telescope, is found by the use of the Bohnenberger's eyepiece and the trough of mercury; the direct and reflected images of the horizontal wire being made to coincide or to touch alternately on the two sides, and the mean of the readings of the micrometer being taken.

Other explanations necessary for the understanding of the process of reduction of the observations will be given under the proper heads. In this place it may be proper to explain briefly the methods employed in making the various classes of observations which are required.

For star-observing generally, the telescope is directed approximately towards the object by the indications of the N.P.D. pointer, and, the telescope being moved by hand till the star is brought near the horizontal micrometer-wire at or near the reading of $20^{rev.}$, the clamping circle is fastened. The transit of the star is then observed over the vertical wires in the usual way, either by galvanic touch or by eye and ear; and, during the transit, by means of the micrometer-screw which acts on the horizontal wire, that wire is made to bisect the star near the passage of the central vertical wire, if practicable. The telescope-micrometer, and the pointer and the six microscope-micrometers, are afterwards read, and the observation is complete. If the star be too faint to allow of illumination of the field, the wires are illuminated, and the observation is made in a field perfectly dark.

For observations of stars by reflexion, the telescope is placed, some minutes previously to the transit of the star, in the direction which is proper for viewing the reflected image of the star; and the mercury-trough is carefully placed in the requisite position and the microscope-micrometers are read after the instrument is clamped. The observer then ascends to the eyepiece of the telescope, and, by means of the micrometer-screw which carries the horizontal wire, bisects the reflected image of the star near the passage of the first vertical wire (if the star has large polar-distance), or near the second or third wire (if the star is circumpolar), and reads the telescope-micrometer. He then descends rapidly into the pit, unclamps the instrument, turns the telescope to the position proper for direct view of the star, and fastens the clamping circle; bisects the star near its passage over one of the vertical wires by

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means of the micrometer-screw, and completes the direct observation in the usual way by reading the telescope-micrometer and the microscope micrometers.

In observing the Sun, the transits of both limbs are taken for Right Ascension, and observations are made both of the upper and lower limb for North Polar Distance, in the following manner. The observer at the telescope is aided by two assistants (usually two of the supernumerary computers), who are stationed in readiness to read the microscope-micrometers. After the transit of the first limb is completed, the telescope is moved by hand till one of the limbs (upper or lower) is brought near to the horizontal wire, when near the reading $20^{rev.}$; then the instrument is clamped, and the horizontal wire is moved, by means of the micrometer-screw which carries it, to touch the limb while passing one of the vertical wires (the No. of which is registered). The telescope-micrometer is then read by the observer, and the microscope-micrometers by the assistants, who in fact had commenced to read the micrometers as soon as the instrument was clamped. The instrument is then unclamped, the telescope is directed to the other limb (lower or upper), the instrument is clamped, the telescope-micrometer is turned to place its wire upon the limb, and the micrometers are all read again. Finally, the instrument is unclamped, and the transit of the second limb over the vertical wires is taken. This operation requires readiness and expertness in the observers; but, when the transits are made by galvanic touch, it is found perfectly easy to take those of the first and the second limb over all the nine wires, still leaving time enough for the observations of both limbs in N.P.D.

For the Moon before opposition, (that is, when the transit of the first limb is observed,) after the transit is completed, the telescope is moved till the limb (upper or lower), which is to be observed in Zenith Distance, is brought near to the middle of the field; the instrument is clamped; and the horizontal telescope-micrometer-wire is brought repeatedly upon the limb (upper or lower) at its passage over the seven original vertical wires at wide intervals, the telescope-micrometer being read after each contact of the wire with the limb. The microscope-micrometers are afterwards read, and the observation is complete.

After the opposition in Right Ascension, the setting for the full limb (upper or lower) is accurately computed beforehand; the instrument is set with care, and is clamped; and the microscope-micrometers are read previously to the passage. The telescope-micrometer is then read for the contact of the wire with the limb at the passage of each of the vertical wires, as explained above; then the clamp is relaxed, and the telescope is turned by hand to a position proper for observing the transits of the second limb in Right Ascension; and, the transits over the vertical wires being taken, the observation is complete.

When both the upper and the lower limbs are so nearly full as to admit of observation, as also when the first and second limbs are very nearly full at the opposition of the Moon, another person is employed to read the microscope-micrometers as in the case of the Sun; and the mode of observation will be readily understood from the

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the microscopes for viewing the divisions of the horizontal circle are cast in the same flow of metal with the bottom piece, and those for viewing the divisions of the vertical circle are cast in the same flow with one of the vertical cheeks. The vertical circle and telescope are of gun-metal; the side of the circle which carries the graduated limb, the ends of the telescope, and one of the pivots, being cast in one flow; and the other side of the circle with its pivot being cast in another flow.

The diameter of each of the two circles (horizontal and vertical) is 3 feet; the length of the telescope is 5 feet; the aperture of its object-glass $3\frac{3}{4}$ inches. The top carries two spirit-levels and the bottom carries two spirit-levels, parallel to the axis of the vertical circle: the vertical cheek which carries the microscopes carries also two spirit-levels parallel to the plane of the vertical circle. No important parts are connected by small screws; and no part whatever admits of adjustment; except that the coarse screws on the ends of the upper radial bars are sometimes touched, to bring the vertical axis to a position conveniently near to exact verticality.

The instrument can be firmly clamped in azimuth; and the vertical circle can be firmly clamped; but neither clamp is furnished with a slow motion. For each movement, however, there is a moderately-slow motion, by rack and pinion.

For a detailed account of this instrument, illustrated by engravings, and for a description of the processes gone through in its adjustment, I refer to the volume of Astronomical Observations for 1847. The description, with some modifications, is reprinted, and attached to the present volume.

As a fixed mark of reference, and as an object for facilitating the determination of the zenith-point of the vertical circle and the collimation-error for horizontal transits, a reversed-telescope or collimator is used. The object-glass of the telescope is the object-glass of 5 inches aperture and 24 feet 6 inches focal length, which was formerly used for the 25-foot Zenith Sector. It is planted in the north wall of the tower of the South Dome; a brass tube about 1 foot long is fixed by Roman cement in the wall, and the object-glass-cell is screwed to a flat bearing upon a ring within the tube; a small penthouse on the outside of the wall protects it from rain. The mark is the image of a small circular hole, as formed by a lens of short focus. The hole is a perforation $\frac{1}{50}$ inch in diameter, in a small circular piece of metal fixed in a larger circular piece of ivory which is attached to an opaque plate. At the distance of about 7 inches from this perforation is a lens of one inch focal length: and the image of the perforation therefore has a diameter of about $\frac{1}{300}$ inch; this image is in the focus of the $24\frac{1}{2}$-foot object-glass, and is in fact the mark viewed with the telescope of the Altazimuth. The perforated plate and the lens are carried by a very strong brass tube about an inch in diameter (a piece cut from the tubular standard of the Royal Astronomical Society), and this is fixed by strong iron thumb-screws into an iron frame which is strongly bolted to the west side of the west wall of the Chronometer-Room (used in 1869 as Second Computing Room) above the Computing-Room,

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below the ridge of the roof of the Passage-Room (part of the ancient Quadrant-Room). The mounting of the mark is thus entirely protected from the Sun and from the weather: and although the separation of the mark and the collimator-object-glass on two unconnected buildings is not unobjectionable, yet the other circumstances of mounting are here as favourable as it is possible to find. The perforation is illuminated by a small gas-light: and its image as viewed through the telescope of the Altazimuth then appears as a very well-defined round point, admitting of most accurate bisection by a wire either in the horizontal or in the vertical direction, surrounded at a little distance by a fainter ring of light. For viewing this mark, the telescope of the Altazimuth is pointed downwards at an inclination of 12°. 18′ below the horizon.

By means of the branches of the galvanic wires leading from the galvanic magnet of one pricker of the Chronographic Barrel to contact-pieces upon the Altazimuth, the observations of transits are registered on the same sheet of paper as those made with the Transit-Circle, in transit-clock-time; and thus all comparisons of clocks become unnecessary, and all errors arising from the transmission of time are avoided.

The wire-plate originally carried six horizontal and six vertical wires, at intervals adapted to eye-and-ear observation of transits; but in the spring of 1854, for more convenient use in the observations by galvanic contact, four additional horizontal wires were inserted at equal intervals between the two central horizontal wires, and four additional vertical wires at equal intervals between the two central vertical wires. On 1861, February 7, a new system of six horizontal wires for observation by galvanic contact was inserted, the middle interval of wires being much larger than either of the other four intervals.

For observing an azimuth, the instrument is clamped in azimuth; and when the object enters the field of view with an oblique course, the moderately-slow motion of the vertical circle is used to make the course of the object apparently horizontal through the middle of the vertical wires; the times of transit over the wires are observed, and the azimuth-circle and the levels parallel to the horizontal axis are read. For observing a zenith-distance, the process is similar, *mutatis mutandis*. The two observations can never be made at the same time.

On 1864, September 30 and October 1, the pivots of the axis of the Vertical Circle of the Altazimuth were examined. The method employed is the same as that explained in detail in the Introduction to the *Greenwich Observations* for 1847, and in the Description of the Altazimuth attached to the present volume, page 14. The residual errors, showing the movements of certain imaginary points on the ends of the two pivots, are given in the following tables:

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Instrument, or 19 feet East and 1½ feet North of the Transit-Circle; with a mounting similar in general form to that known as the "German Equatoreal." A stone pier is erected, whose extreme breadth from East to West is 1 foot 4 inches, and from North to South 5 feet 4 inches: the southern or principal portion of the upper surface of this pier is sloped so that its plane produced passes through the celestial pole: upon the surface is fixed a cradle of cast iron, having the lower bearing of the polar-axis in a projection from its lower end, and the upper bearing at its upper end: the distance between the two bearings is 3 feet 7 inches. The axis is of cast iron; its form is nearly conical: the end which rests in the lower bearing is a more obtuse cone. The diameter of the axis, where it turns in the upper bearing, is 6 inches: it rests here in a Y upon two plates of gun-metal. At a small distance below the upper bearing, a strong circular plate parallel to the equator, 14 inches in diameter, is fixed to the axis: and close above it, another plate of the same size is mounted, parallel to the former, turning freely round the axis; in that surface of each of these two plates which is nearest to the other plate, a dove-tailed groove is turned, and a moveable clamping-piece has one clamp in the groove of one plate, and the other clamp in the groove of the other plate. By means of this clamping-piece, the two circular plates can be fixed together at pleasure, in any relative position. The moveable circular plate is inseparably connected with a long flat arm, or sector, of 24 inches in length (measured from the circumference of the plate) in the plane of the equator: the edge of this sector is cut into teeth, in which works the endless screw carried by the clock, which is fixed to the North side of the pier. Therefore, if the clamping-piece above-mentioned is not fixed to either plate, or is fixed to only one, the action of the clock-work upon the sector, though it turns the moveable circular plate, does not turn the fixed circular plate; but if the clamping-piece is fixed to both plates, the action of the clock-work on the sector carries the moveable plate and the fixed plate (now connected with it), and therefore turns the polar axis, and the telescope, &c., which is supported by the polar axis. Between that part of the clamping-piece which is connected with the fixed plate, and that part which is connected with the moveable plate, there is a slow-motion screw, turned by means of a Hook's joint and a long handle. Immediately above the upper bearing, the polar axis carries the hour-circle, 12 inches in diameter; it is divided on its edge to 1^m of time, and is read off to 2^s by two verniers. Above this, a square box is firmly fixed to the axis; perforated in a direction parallel to the equator for the insertion of the declination-axis. The diameter of the declination-axis at each of its two bearings is about 4 inches; it is supported at each by a Y. To one end of the declination-axis is fixed the cradle, carrying the telescope; to the other is fixed the declination-circle, and the counterpoise. The diameter of the declination-circle is 11 inches; it is divided on its edge to 15′ of arc, and is read off to 30″ by two verniers attached to the square box. The telescope-tube is of wood; its form is square in the middle, chamfered off towards the ends so as to become octagonal: several stops, or transversal plates with holes of the proper magnitude, are fixed in it; it is very firm and free from tremors. Upon a large ring which is fixed to the square box there turns with stiff friction another ring, carrying two sector

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arms, graduated at their extremities; these graduations are read by micrometer-microscopes, carried, one by the eye-end of the telescope-tube and one by the object-end: the use of this graduated double sector is, to measure small differences of declination (not exceeding 10°) with great accuracy; as, being brought by the hand under the telescope, it is then retained in its position by friction, and is not affected by the motion of the telescope. Upon another ring, which is fixed to the square box, there turns a ring-clamp, or brake, that admits of being fastened to it in any position; with this ring-clamp the telescope-cradle is connected by means of a slow-motion screw, which fixes the telescope in declination, or gives the means of imparting to it a slow motion in declination. The speed of the clock is regulated by two balls, suspended to the ends of a horizontal arm of $4\frac{3}{4}$ inches in length, which is carried by a vertical spindle; when the velocity is so great as to cause the suspending-rods to make a certain angle with the vertical, small projections, carried by the balls, are thereby made to rub against the lower surface of a fixed horizontal ring, and the friction thus caused prevents the weight which urges the clock from greatly increasing the velocity. This mounting was constructed by Mr. T. Grubb, of Dublin. Besides several negative eyepieces unfurnished with wires, this telescope has a wire-micrometer, a comet-eyepiece with thick wires, and a double-image micrometer constructed on the principles explained in the Memoirs of the Royal Astronomical Society, vol. xv, page 199, and Monthly Notices, vol. x, page 160; (and described in page xx, below).

The Great Equatoreal, constructed by Messrs. Ransomes and Sims as Engineers, and Mr. Simms as Instrument Maker and Optician.—It is my intention, as soon as circumstances shall permit, to prepare a complete description of this instrument. In the meantime, the following account will give information on its principal peculiarities. It is to be premised that the form of the instrument is the "English Equatoreal;" the polar-axis turning on pivots at its extreme ends, and including between its two sides the telescope and declination-circle attached to it; the frame which carries the telescope and declination-circle having its pivots at opposite extremities of the declination-axis.

The "South-East Dome," which contains this instrument, is in close proximity to the south-east corner of the Record Room, and occupies part of the isthmus which connects the Observatory Hill with the upper part of Greenwich Park. It is in form an octagon, with an attached projection on the north side, containing the staircase. The length of the line drawn perpendicularly through opposite sides of the octagon is 31 ft. 4 in. The building consists of three stories; that of the ground floor contains the Water-Clock-Movement (to be mentioned below), and is used for other purposes unconnected with the Equatoreal; the middle story was used, in 1867, as a room for computations; the upper story is properly the Equatoreal Room.

The walls are built to the height of 9 ft. 5 in. above the floor of the Equatoreal Room. Arches are turned across the angles of the octagon, so as to make the upper surface of the walls a polygon of sixteen sides. Upon this surface is planted a circular wooden ring or curb, upon which is fixed an iron curb, containing a channel in which

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great care was taken in the preparation and examination of this large endless screw. The supply of water to the reaction-machine is determined by the construction called "Siemens' Chronometric Governor," in which the first of three wheels of a train is connected with the machine, the third maintains the motion of a conical pendulum (so arranged by water-resistance that its arc is sensibly invariable), and the axis-frame of the second or intermediate wheel is moveable, and is connected with the throttle-valve of the water-supply. If the supply accelerates the machine too much, its excess of motion is immediately impressed on the frame of the second wheel, and the supply of water is diminished.

The Double-Image Micrometer.—The general form of the double-image eyepiece, together with the mode of use, and the advantages and disadvantages attending the use of it, are described fully in the preceding volumes, for 1840 and for 1843 to 1849, to which it is sufficient in this place to refer.

The special arrangement of this double-image eyepiece is described in vol. xv. of the *Memoirs of the Royal Astronomical Society*. The characteristic of this construction is, that the colour produced by the prismatic dispersion, which is occasioned by the passage of the rays through each half of the divided lens where the images are separated, is corrected by a new arrangement of the lenses. In this construction the focal length of the first lens, or that nearest to the object-glass, is arbitrary; so that the power is changed by change of this first lens instead of the fourth, as in the original construction. The eyepiece now used is the same as that which was first used in 1851, and was made on the principles above explained, adopting, among the various admissible relations of the focal lengths and intervals of lenses, one which was suggested by Mr. B. Valz, of Marseilles, and which is described in the Monthly Notices of the Royal Astronomical Society, 1850, June 14. The principal difference between this eyepiece and that used in 1850 consists in the circumstance that the divided lens is concave, instead of being convex, as in the former case. By this means much less light is lost from the central portions of the pencil in its passage past the divided surfaces of the lenses, and the construction is undoubtedly preferable to that used before.

The numbers defining the construction of this eye-piece are as follows:—

Focal length of 1st lens, or that nearest the object-glass, arbitrary, or	a;
Distance from 1st lens to 2d lens, the same as focal length of 1st lens, or	a;
Focal length of 2d or divided lens, which is concave	1;
Distance from 2d lens to 3d	1;
Focal length of 3d or field-glass	1;
Distance from 3d to 4th	3;
Focal length of 4th or eye-glass	1;

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Where the numbers 1 and 3 may be applied to any scale of linear measure.

And the forms of the lenses should be the following:—

1st lens	-	equi-convex.
2d or divided lens	-	equi-concave.
3d or field-glass	-	plano-convex, with its plane side next the divided lens.
4th or eye-glass	-	equi-convex.

The same double-image micrometer which in preceding years was used with the Sheepshanks Equatoreal was in the year 1861 mounted (by use of an adapting-tube) on the South-East Equatoreal; the value of its micrometer is thereby necessarily altered.

The Reflex Zenith-Tube, constructed under my direction by Mr. Simms.—A detailed account of this instrument is given in Appendix I. to the volume for 1854; in this place the following account will suffice: The object-glass (formerly the object-glass of Troughton's Transit-Instrument) is mounted upon a fixed tube, which is in a vertical position; upon this tube it can be turned in azimuth. To the cell of the object-glass is firmly fixed the micrometer-frame, revolving with the object-glass when the object-glass is turned. The point of the screw of the micrometer A rests upon the fixed micrometer-frame. The moving frame of the micrometer A carries the resting-point of the micrometer-screw of the micrometer B. The micrometer B carries the wires by which the star's image is bisected. The eyepiece is a 4-glass diagonal eyepiece bent at right angles between its third lens and its fourth lens (counting from the eye), and having a diagonal-prism-reflector at the place where it is bent; and so placed that the fourth lens can receive rays of light from the direction of the nadir, and can, by means of the diagonal prism, transmit them horizontally to the eye. The fourth lens (which looks vertically downwards), and the diagonal prism, are placed nearly over the center of the object-glass, being carried by arms which are fixed to the large tube; the small horizontal tube which carries the remaining lenses of the eyepiece is supported by the large tube of the telescope, and does not project over any part of the object-glass. Below the object-glass, at a distance nearly equal to half its focal length, is a trough of quicksilver. The image of the star, as it passes near to the zenith, is formed in the plane of the micrometer wires. These particulars will probably suffice for enabling the reader to understand the reductions. It will easily be seen that, to ensure accuracy of result, no firmness of construction is requisite in this instrument, except in the connection between the micrometer and the object-glass. The instrument is mounted in a new building erected for it in the Middle Garden, in the angle between the passage behind the Astronomer Royal's Official Room and the south projection of the Transit-Circle-Room.

For the support of the quicksilver, the following method has, after several trials, been adopted:—A well was dug to the depth of ten feet below the surface, or seven feet below the deepest foundation of the walls of the Observatory, and was filled with incoherent rubbish. When a stage was placed upon it, the tremor (which had

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of hourly galvanic signal-currents sent from the Royal Observatory. The motor clock also closes a circuit precisely at each hour, causing hourly time-signals to be distributed on different wires to the principal telegraph companies and on some of the most important lines of railway. That at 1^h, by the intervention of electro-magnets, pulls automatically the ball-trigger and drops the Signal-Ball at Greenwich; at the same instant galvanic currents pass, one to drop the Signal-Ball at Deal, another to drop that in the Strand, London (the property of the Electric and International Telegraph Company), and to fire signal guns at Newcastle and North Shields. The hourly currents received by the Electric and International Telegraph Company pass to the General Post Office, London; that at noon regulates daily several of the clocks in that building. The same currents pass to the Clock Tower of the Westminster Palace, for the guidance of the Superintendent of the Clock in bringing it to accurate time. The motor clock also so changes the connections of wires that they are competent to transmit currents to the Royal Observatory; and thus the drop of the ball at Deal, and the indications of the Post Office clocks and the Westminster clock, are made visible at the Royal Observatory.

A sympathetic system of chronometers is also connected with the transit-clock. By means of the wheel on the escape-wheel-arbor (described in page xi), 59 currents are sent through an additional pair of springs every minute, and are used to regulate the pendulum of a half-seconds-clock placed on the foundation frame upon the South Pier of the Great Equatoreal, near to the Time-Microscope; to regulate also a half-seconds-chronometer fixed to the eye-end of the telescope of the Great Equatoreal, near to the eye-piece, and always in view of the observer; and to drive a galvanic chronometer placed in the Computing Room on the desk of the Superintendent of Clocks and Galvanism. The half-seconds-clock is regulated in the manner introduced by Mr. R. L. Jones, excepting that the galvanic coil is fixed to the clock-case and the bar-magnet attached to the pendulum. A similar principle is used for regulation of the chronometer on the eye-end of the Great Equatoreal. Upon the axis of its balance a small magnet is fixed (its center being pierced by the balance-staff); a fixed coil embraces the magnet as in the ordinary galvanometer, and through this coil pass the currents received from the transit-clock. The omission of one current in each minute is unimportant as concerns the regulated clock and chronometer, but not so as regards the chronometer which is driven by the current. For this chronometer, therefore, the seconds circle on its dial plate is divided into 59 equal parts (instead of 60), so that one particular division corresponds to two consecutive seconds, and at this division the seconds hand of the transit-clock advances once, whilst that of the chronometer remains at rest. A comparison of this chronometer with the chronometer on the same desk, synchronous with the motor-clock (as mentioned in the last paragraph), is, in fact, a comparison of the transit-clock with the motor-clock. The error of the motor-clock is thus ascertained; and then, by means of a turn-plate on the same desk, the circuit of a galvanic current is completed which, passing through a galvanic coil (with no iron core) in the clock-case, can be made either to attract or to repel a magnet

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attached to the pendulum, and thus to accelerate or retard the motor-clock as long as may be necessary for its correction. The six clocks connected with the motor-clock necessarily receive the same correction.

III. *Subjects of Observation in the Year* 1867.

The Sun has been observed on the meridian at every practicable opportunity, except on Sundays: the Moon and Moon-culminating stars have been observed at every opportunity without exception.

With regard to the Planets, the following rules have been observed: The inferior Planets, Mercury and Venus, have been observed on the meridian at every practicable opportunity, excepting Sundays. The superior large Planets, Mars, Jupiter, Saturn, Uranus, and Neptune, have not generally been observed when their solar time of meridian passage is greater than 15^h, excepting at times when the Moon passes the meridian later than 15^h. The small Planets have been observed only when the time of meridian passage is earlier than 13^h, and only in the first part of each Lunation from New Moon to Full Moon (the observations from Full Moon to New Moon being undertaken by M. Le Verrier, as is mentioned above, page ii). The observations of all Planets are intermitted on Sundays.

In the meridional observations of the stars, it has been considered as the first object to establish with indisputable accuracy the places of those included in the Nautical Almanac list (as far as they are visible in this latitude). For this purpose the number of observations of each star made in the two preceding years was ascertained, and the additional number necessary to make up this to fifteen was in 1866 considered to be the number due from that year. In far the greater number of instances this number is exceeded: in a few (especially of stars too near the pole to be used for clock-error), the just number is not completed.

The other stars observed are principally: A list of 80 stars whose right ascensions have been well determined, and which are used, in connection with the Nautical Almanac Stars, for determining clock-error; Stars remaining from former years, including stars to complete previous catalogues; Moon-culminating Stars to the end of the list in the Nautical Almanac 1870; Stars whose occultations by the Moon have been observed at Greenwich; variable Stars; Stars which pass near the North and South Horizon; Stars suspected or known to have large Proper Motions; Stars to be used in future, for the determination of Azimuthal Errors; Stars of which observations have been requested by Astronomers for special purposes; and Stars in Bessel's Fundamenta not previously re-observed at Greenwich since Bradley's time.

The Altazimuth has been used for observations of the Moon on every day when she could be seen, without exception; and for the observations of Stars necessary for instrumental adjustments, and of the collimator for the same purpose. Its telescope has also been occasionally used for observing the occultations of Stars by the Moon, and for the phenomena of Jupiter's Satellites.

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The equatoreal intervals of the wires were determined by observations of stars. From the nature of the process, these intervals are necessarily corrected for the mean effects of refraction. The following are the intervals which were in use during the year 1867 up to June 26:—

Corrections to reduce the time of transit over each wire to that over the center wire for observations of Equatoreal stars over the system of nine wires usually employed for the Chronographic Observations.

		s
For wire P	+	13·828
Q	+	10·996
R	+	8·268
S	+	5·501
T		0·000
U	−	5·578
V	−	8·339
W	−	11·102
X	−	13·842

Hence, for the usual circumpolar stars, the intervals in time from any wire to the center wire are,—

For λ Ursæ Minoris, assuming its declination = 88°. 54′ + n'':

			m s		s
Wire P	=	+	12. 0·63	+ n ×	0·185
Q	=	+	9. 32·95	+ n ×	0·147
R	=	+	7. 10·75	+ n ×	0·110
S	=	+	4. 46·57	+ n ×	0·073
T			0·00		
U	=	−	4. 50·58	− n ×	0·073
V	=	−	7. 14·45	− n ×	0·110
W	=	−	9. 38·48	− n ×	0·147
X	=	−	12. 1·37	− n ×	0·185

For Polaris, assuming its declination = 88°. 35′ + n'':

			m s		s
Wire P	=	+	9. 19·47	+ n ×	0·111
Q	=	+	7. 24·85	+ n ×	0·088
R	=	+	5. 34·46	+ n ×	0·066
S	=	+	3. 42·52	+ n ×	0·045
T			0·00		
U	=	−	3. 45·63	− n ×	0·045
V	=	−	5. 37·33	− n ×	0·066
W	=	−	7. 29·14	− n ×	0·088
X	=	−	9. 20·04	− n ×	0·111

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For Cephei 51, assuming its declination = 87°. 14′ + n'' :

			m s		s
Wire P	=	+	4. 46·50	+ n ×	0·029
Q	=	+	3. 47·82	+ n ×	0·023
R	=	+	2. 51·30	+ n ×	0·017
S	=	+	1. 53·97	+ n ×	0·011
T			0·00		
U	=	−	1. 55·56	− n ×	0·011
V	=	−	2. 52·77	− n ×	0·017
W	=	−	3. 50·01	− n ×	0·023
X	=	−	4. 46·79	− n ×	0·029

For δ Ursæ Minoris, assuming its declination = 86°. 36′ + n'' :

			m s		s
Wire P	=	+	3. 53·17	+ n ×	0·019
Q	=	+	3. 5·42	+ n ×	0·015
R	=	+	2. 19·41	+ n ×	0·011
S	=	+	1. 32·76	+ n ×	0·008
T			0·00		
U	=	−	1. 34·06	− n ×	0·008
V	=	−	2. 20·61	− n ×	0·011
W	=	−	3. 7·20	− n ×	0·015
X	=	−	3. 52·4	− n ×	0·019

From June 26 to July 10 the eye-piece was in the hands of Mr. Simms, for alteration of declination-micrometer and for application of screws to facilitate the focal adjustment of the telescope. On July 10 the eye-piece was replaced, and the intervals of the wires were redetermined by star-observations as before. The following corrections were employed in the reduction of observations from July 10 to October 29 :—

Corrections to reduce the time of transit over each wire to that over the center wire for observations of Equatoreal stars.

				s
For wire P	=	+	13·850
Q	=	+	11·023
R	=	+	8·274
S	=	+	5·502
T	=		0·000
U	=	−	5·580
V	=	−	8·347
W	=	−	11·099
X	=	−	13·845

On October 29 wires Q and V were found frayed, and were renewed by Mr. Simms. The following corrections were determined as before from star-observations, and were used from October 29 to the end of the year :—

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Error of Collimation.

The value of this error is given in seconds of arc. The sign of the error is considered positive when it implies an additive correction to the time of observed transits of stars above the pole.

The method of determining the position of the line of collimation by means of the north and south collimators has been so fully explained above in the description of the instrument, that it is unnecessary to repeat the explanation here. It is only necessary to state that the reading of the micrometer of the south collimator, for coincidence of its nearly vertical wire with the image of that of the north collimator, is frequently ascertained (the results of which will be found on pages [102] to [105]), and that the micrometer-wire of the south collimator is then left in the position so ascertained. And that every day the reading of the transit-telescope-micrometer, for coincidence with the image of the wire of each collimator, is found (the results of which are given in pages [106] to [108]); that the mean of these gives the reading for the line of collimation for that day; and that the mean of these determinations, usually for a week, is adopted as the true reading for the geometrical line of collimation of the transit-telescope.

During the year 1851 the observations of the collimators with the transit-telescope were usually made twice in every day. Upon examination of the results it did not appear that there was any discoverable difference at different hours of the day, and therefore generally, since that time, the observations have been made only once in every day.

The micrometer of the transit-telescope is left at some convenient reading, near to that of the geometrical collimation, but not necessarily coinciding with it. This reading is given at the foot of every page of transits. The algebraical excess of the reading for geometrical collimation above this is the geometrical error of collimation, with the sign as explained above. This excess is converted into arc at the rate of $14''\cdot78$ for one revolution of the micrometer. (This determination of the value of a revolution was made at the end of the year 1850, as is explained in the description of the Transit Circle, page {22}, Appendix I., of the Volume for 1852, or in the reprint attached to the present volume, page 25: a new investigation for verification of the value was made on 1854, June 27, the resulting value of a revolution being $14''\cdot76$, which is essentially identical with the preceding.) To the excess thus converted into arc is then applied $-0''\cdot19$ for diurnal aberration; and the result is the quantity which is given in the fifteenth column of the *Transits* as the Error of Collimation, and which is adopted for correction of the observed transits.

The numerical correction to the time of observed transit, in seconds of time, is,

$$\text{Error of Collimation} \times \frac{1}{15 \sin \text{N.P.D.}}.$$

Error of Level.

The error of level of the axis of revolution is considered positive when the western end of the axis is too high.

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The process of determining the error of level consists in taking the reading of the transit-telescope-micrometer which makes the image of the wire as seen by reflexion from the surface of quicksilver to coincide with the wire as seen directly, as is explained in the description of the instrument above, and comparing this reading with the reading for the geometrical line of collimation. The excess of the reading for the line of collimation, above the reading for coincidence of direct and reflected images, gives the error of level, with the sign mentioned above. It is converted into arc at the rate of $14''{\cdot}78$ for one revolution of the micrometer. The mean of the results is adopted sometimes for a week, sometimes for a shorter time, as the instrument appears to have been more or less steady in level.

The details of these operations are given in pages [109] to [111].

The result adopted for the error of level is given in the fifteenth column of the *Transits*.

The numerical correction to the time of observed transit, in seconds of time, is,

$$\text{Error of level} \times \frac{\text{cosine zenith distance}}{15 \sin \text{N.P.D.}}.$$

The observations for the error of level are usually made at the same time as those for the line of collimation. During the year 1851 they were usually made twice every day; but on examination there appeared to be no discoverable difference between the results for different hours of the day; and since that time the observation has been made in general only once each day. Lately, however, there has appeared reason for believing that the variations of level have a close connexion with the variations of temperature, any sudden change of temperature being almost invariably accompanied by an abrupt change of the error of level. To verify this fact, observations of the level were made for a short period, in 1858 (see *Greenwich Observations*, 1858, Introduction, page xxiv), at the end of long night-watches, as well as at the commencement, so as to obtain a great change of temperature; and it appeared that every notable rise of temperature was accompanied with a diminution of error of level. There appears to be nothing whatever in the metallic structure of the instrument, or its mounting, which can explain this thermal change. The qualities of the stones of which the two piers are built are different; but I can scarcely imagine that such masses can so quickly receive the influence of change of temperature. In the observations of a single evening, something might be attributed to the radiation from the illuminating lamp; but this cannot explain the changes whose periods are long.

Error of Azimuth.

This error is considered positive when the Eastern pivot is too far North. It is generally determined from observations of Polaris or of δ Ursæ Minoris, at consecutive passages above and below the pole; or from one observation of Polaris combined with

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N.P.D.	Collimation. $\frac{1}{15 \sin \text{N.P.D.}}$	Level. $\frac{\cos \text{Z.D.}}{15 \sin \text{N.P.D.}}$	Azimuth. $\frac{\sin \text{Z.D.}}{15 \sin \text{N.P.D.}}$	N.P.D.	Collimation. $\frac{1}{15 \sin \text{N.P.D.}}$	Level. $\frac{\cos \text{Z.D.}}{15 \sin \text{N.P.D.}}$	Azimuth. $\frac{\sin \text{Z.D.}}{15 \sin \text{N.P.D.}}$
° ′				° ′			
37. 0	+0·111	+0·111	−0·003	82. 0	+0·067	+0·049	+0·046
38. 0	+0·108	+0·108	−0·001	83. 0	+0·067	+0·048	+0·047
39. 0	+0·106	+0·106	+0·001	84. 0	+0·067	+0·047	+0·048
40. 0	+0·104	+0·104	+0·003	85. 0	+0·067	+0·046	+0·048
41. 0	+0·102	+0·101	+0·004	86. 0	+0·067	+0·045	+0·049
42. 0	+0·100	+0·099	+0·006	87. 0	+0·067	+0·044	+0·050
43. 0	+0·098	+0·097	+0·007	88. 0	+0·067	+0·043	+0·051
44. 0	+0·096	+0·096	+0·009	89. 0	+0·067	+0·042	+0·052
45. 0	+0·094	+0·094	+0·011	90. 0	+0·067	+0·041	+0·052
46. 0	+0·093	+0·092	+0·012	91. 0	+0·067	+0·040	+0·053
47. 0	+0·091	+0·090	+0·013	92. 0	+0·067	+0·040	+0·054
48. 0	+0·090	+0·088	+0·015	93. 0	+0·067	+0·039	+0·054
49. 0	+0·088	+0·087	+0·016	94. 0	+0·067	+0·038	+0·055
50. 0	+0·087	+0·085	+0·017	95. 0	+0·067	+0·037	+0·056
51. 0	+0·086	+0·084	+0·018	96. 0	+0·067	+0·036	+0·057
52. 0	+0·085	+0·082	+0·020	97. 0	+0·067	+0·035	+0·057
53. 0	+0·083	+0·081	+0·021	98. 0	+0·067	+0·034	+0·058
54. 0	+0·082	+0·080	+0·022	99. 0	+0·067	+0·033	+0·059
55. 0	+0·081	+0·078	+0·023	100. 0	+0·068	+0·032	+0·060
56. 0	+0·080	+0·077	+0·024	101. 0	+0·068	+0·031	+0·060
57. 0	+0·080	+0·075	+0·025	102. 0	+0·068	+0·030	+0·061
58. 0	+0·079	+0·074	+0·026	103. 0	+0·068	+0·029	+0·062
59. 0	+0·078	+0·073	+0·027	104. 0	+0·069	+0·028	+0·063
60. 0	+0·077	+0·072	+0·028	105. 0	+0·069	+0·027	+0·063
61. 0	+0·076	+0·070	+0·029	106. 0	+0·069	+0·027	+0·064
62. 0	+0·076	+0·069	+0·030	107. 0	+0·070	+0·026	+0·065
63. 0	+0·075	+0·068	+0·031	108. 0	+0·070	+0·025	+0·066
64. 0	+0·074	+0·067	+0·032	109. 0	+0·071	+0·024	+0·066
65. 0	+0·073	+0·066	+0·033	110. 0	+0·071	+0·023	+0·067
66. 0	+0·073	+0·065	+0·034	111. 0	+0·072	+0·022	+0·068
67. 0	+0·072	+0·064	+0·035	112. 0	+0·072	+0·021	+0·069
68. 0	+0·072	+0·063	+0·035	113. 0	+0·073	+0·020	+0·070
69. 0	+0·071	+0·061	+0·036	114. 0	+0·073	+0·018	+0·071
70. 0	+0·071	+0·060	+0·037	115. 0	+0·074	+0·017	+0·072
71. 0	+0·071	+0·059	+0·038	116. 0	+0·075	+0·016	+0·072
72. 0	+0·070	+0·058	+0·039	117. 0	+0·075	+0·015	+0·073
73. 0	+0·070	+0·057	+0·039	118. 0	+0·076	+0·014	+0·074
74. 0	+0·069	+0·056	+0·040	119. 0	+0·076	+0·013	+0·075
75. 0	+0·069	+0·055	+0·041	120. 0	+0·077	+0·012	+0·076
76. 0	+0·069	+0·054	+0·042	121. 0	+0·078	+0·011	+0·077
77. 0	+0·068	+0·053	+0·043	122. 0	+0·079	+0·009	+0·078
78. 0	+0·068	+0·053	+0·043	123. 0	+0·080	+0·008	+0·079
79. 0	+0·068	+0·052	+0·044	124. 0	+0·080	+0·007	+0·080
80. 0	+0·068	+0·051	+0·045	125. 0	+0·081	+0·005	+0·081
81. 0	+0·067	+0·050	+0·045	126. 0	+0·082	+0·004	+0·082
82. 0	+0·067	+0·049	+0·046				

The *sixteenth* column contains the seconds of every transit, as affected with the three preceding corrections; and is conceived to represent the clock-time at which each body passed the true astronomical meridian of Greenwich. The numbers to which a bracket is annexed are those resulting from the mean of the two limbs of the Sun or a planet.

The *seventeenth* column contains the seconds of the tabular R.A. of the stars which are used for determining clock-errors. In addition to the list of stars taken from the

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Nautical Almanac, whose North Polar Distances exceed 50°, there has been used, as in preceding years, another list, consisting in the year 1867 of 80 stars, selected and observed for this purpose, and lying within the same limit of Polar Distance. The apparent clock-errors given by the observations of Polaris, Cephei 51 (Hev.), δ Ursæ Minoris, and λ Ursæ Minoris, are set down, whenever they have been actually used in determining the azimuthal error, to enable the reader to judge of the general state of adjustment of the instrument.

For the Nautical-Almanac-stars, the Right Ascensions are computed by applying, to the numbers given in the Nautical Almanac, corrections fundamentally deduced from the "Seven-Year Catalogue of 2022 Stars, deduced from Observations, extending "from 1854 to 1860, at the Royal Observatory, Greenwich, and reduced to the "Epoch 1860," which is printed as an Appendix to the volume for 1862. To bring up the Mean Right Ascensions from the epoch of the Catalogue, viz., 1860, to the year 1867, use has been made of the precessions of that Catalogue, and of the proper motions given by Mr. Main or by Mr. Stone. The corrections necessary to bring up the stars' Right Ascensions to the day of observation are computed by the formula $E e + F f + G g + H h + L + l - 300^s + \mu t$, to which further allusion will be made below. For stars near the pole, the additional correction depending on the place of the Moon is also taken into account. The following table gives the Mean Right Ascensions for 1867, January 1, of all the stars which have been used in 1867 for determining clock-errors, together with the constant corrections to the Right Ascensions of the Nautical-Almanac-stars; it gives also, in addition, the Right Ascensions of Polaris and other stars very near the pole, which have been observed for the determination of azimuthal error throughout the year 1867.

ASSUMED MEAN RIGHT ASCENSIONS OF CLOCK STARS AND CIRCUMPOLAR STARS, WITH THE CORRECTIONS TO THE NAUTICAL ALMANAC, FOR 1867, JANUARY 1.

Star's Name.	Assumed Mean R. A. 1867, Jan. 1.	Correction to N.A.	Star's Name.	Assumed Mean R.A. 1867, Jan. 1.	Correction to N.A.
	h m s	s		h m s	s
α Andromedæ.....	0. 1. 31·04	+ 0·06	γ Ceti.....	2. 36. 24·65	+ 0·04
γ Pegasi.....	0. 6. 23·36	+ 0·05	σ Arietis.....	2. 44. 9·15	
ι Ceti.....	0. 12. 38·99		α Ceti.....	2. 55. 19·72	+ 0·06
12 Ceti.....	0. 23. 15·05	— 0·04	δ Arietis.....	3. 4. 1·65	0·00
ε Andromedæ.....	0. 31. 31·95		τ¹ Arietis.....	3. 13. 33·12	
β Ceti.....	0. 36. 54·68	+ 0·06	ο Tauri.....	3. 17. 39·53	
μ Andromedæ.....	0. 49. 22·72		f Tauri.....	3. 23. 32·01	
ε Piscium.....	0. 56. 2·56	— 0·02	ε Eridani.....	3. 26. 39·92	
β Andromedæ.....	1. 2. 17·56		11 Tauri.....	3. 32. 49·93	
Polaris.....	1. 10. 17·36	+ 0·11	δ Eridani.....	3. 36. 52·68	
θ Ceti.....	1. 17. 22·50	+ 0·02	η Tauri.....	3. 39. 34·94	+ 0·05
η Piscium.....	1. 24. 22·16	+ 0·05	γ¹ Eridani.....	3. 51. 49·46	+ 0·05
ν Piscium.....	1. 34. 30·66	0·00	ω¹ Tauri.....	4. 1. 25·27	
β Arietis.....	1. 47. 17·78	+ 0·01	o¹ Eridani.....	4. 5. 22·41	— 0·03
α Arietis.....	1. 59. 40·83	+ 0·01	γ Tauri.....	4. 12. 13·64	
67 Ceti.....	2. 10. 21·00	+ 0·03	ι Tauri.....	4. 20. 51·15	+ 0·01
ξ² Ceti.....	2. 21. 5·38	— 0·01	Aldebaran.....	4. 28. 17·47	— 0·01
δ Ceti.....	2. 32. 40·06		μ Eridani.....	4. 38. 51·26	

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Mr. Ellis's observations is greater than that given by Mr. Dunkin's observations by $0^s{\cdot}16$, as deduced from observations suitable for the determination of this quantity in the year 1866; and this is the last determination of personal equation which is available for the daily reduction of observations in 1867. The quantity $0^s{\cdot}16$ is therefore subtracted from Mr. Ellis's clock-errors, and it is then considered that we have two sets of clock-errors (namely, Mr. Dunkin's as unaltered, and Mr. Ellis's as modified) justly comparable. Each mean clock-error, properly modified, is now compared with that which precedes and with that which follows; a preceding rate and a following rate are thus found, and by these the computer is guided in adopting the clock-rate to be used through the group of observations: this adopted clock-rate is set down in the nineteenth column. For facility of calculation, the proportional part of this rate, corresponding to the mean sidereal time or mean of all the times of transit for the group, is applied with changed sign to the mean clock-error; and thus the clock-error at 0^h sidereal is found. If it happen that any observations included in the same group are made in the sidereal day preceding or following that for which the mean error has been found, the whole adopted daily rate is subtracted from or added to the error found for 0^h; and thus the error for 0^h of the preceding or the following sidereal day is obtained. These errors at 0^h for all the different sidereal days are also set down in the nineteenth column. It is to be remarked that, in the application of these errors, if the observations of small stars and planets have been made by the same person as the observations of the clock-stars (whether it be Mr. Dunkin or Mr. Ellis), no further computation is necessary for obtaining the right ascensions of those objects than the application, to the time of transit, of the clock-error at 0^h, and of a proportional part of the clock-rate corresponding to the right ascension of the object: but, if the clock-stars are observed by Mr. Ellis, and the other object by Mr. Dunkin, a further correction $-0^s{\cdot}16$ must be applied: if the clock-stars are observed by Mr. Dunkin, and the object by Mr. Ellis, $+0^s{\cdot}16$ must be applied. The personal equations are *not* applied in the column of *Apparent Right Ascensions from the Observations* in this Section.

In the preceding years, observations were exhibited which gave the relative personal equations of the different observers of transits, as far as means existed for determining them. In the year 1867 the following sets of observations have been found available for determining personal equations in the use of the galvanic method of recording transits. They have been treated in the same manner as in preceding years, by comparing the clock-error at the same sidereal hour given by two different groups of stars observed by different persons.

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OBSERVATIONS FOR THE DETERMINATION OF THE PERSONAL EQUATIONS OF THE VARIOUS TRANSIT-OBSERVERS USING THE GALVANIC METHOD OF OBSERVING TRANSITS.

Day, 1867.		Observers in order of Seniority.	Interval of nearest Stars.	Order of Observations.		Clock Slow at 0^h Sidereal by Senior Observer.	Clock Slow at 0^h Sidereal by Junior Observer.	Excess of Clock Slow by Junior Observer.
			h			s	s	s
May	23	S and D	3	S	D	61·12	61·03	− 0·09
February	22	S and E	1	S	E	9·55	9·54	− 0·01
March	14		0	E	S	8·39	8·51	+ 0·12
October	7	S and C	0	C	S	18·55	18·44	− 0·11
November	10		0	S	C	5·36	5·15	− 0·21
February	22	S and J C	3	S	J C	9·55	9·38	− 0·17
May	10		1	J C	S	30·50	30·31	− 0·19
,,	16		1	J C	S	45·14	44·97	− 0·17
June	21		1	J C	S	33·93	33·86	− 0·07
August	18		0	J C	S	50·55	50·55	0·00
December	19		6	J C	S	4·30	4·29	− 0·01
December	19	S and P	1	S	P	4·30	4·46	+ 0·16
January	13	D and E	1	D	E	34·85	35·04	+ 0·19
,,	15		2	E	D	31·42	31·45	+ 0·03
,,	19		4	E	D	22·67	22·85	+ 0·18
February	20		0	E	D	62·59	62·75	+ 0·16
March	16		1	E	D	11·29	11·53	+ 0·24
April	8		0	D	E	42·97	43·21	+ 0·24
,,	10		0	E	D	45·70	45·87	+ 0·17
,,	14		0	D	E	51·09	51·27	+ 0·18
,,	18		1	E	D	56·03	56·16	+ 0·13
June	25		4	D	E	45·93	46·15	+ 0·22
July	17		0	E	D	9·28	9·39	+ 0·11
August	9		0	E	D	39·44	39·59	+ 0·15
,,	11		0	D	E	41·01	41·09	+ 0·08
October	4		0	D	E	14·64	14·71	+ 0·07
,,	6		1	D	E	17·19	17·28	+ 0·09

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OBSERVATIONS FOR PERSONAL EQUATIONS—*continued.*

Day, 1867.		Observers in order of Seniority.	Interval of nearest Stars.	Order of Observations.		Clock Slow at 0^h Sidereal by Senior Observer.	Clock Slow at 0^h Sidereal by Junior Observer.	Excess of Clock Slow by Junior Observer.
			h			s	s	s
February	22	E and J C	2	E	J C	9·54	9·38	− 0·16
,,	23	*cont.*	4	J C	E	13·40	13·17	− 0·23
March	28		5	J C	E	31·31	30·98	− 0·33
May	22		2	J C	E	58·72	58·51	− 0·21
July	11		1	J C	E	61·53	61·46	− 0·07
,,	13		2	J C	E	63·91	63·65	− 0·26
,,	20		1	J C	E	14·69	14·45	− 0·24
September	4		0	J C	E	20·78	20·58	− 0·20
,,	6		0	J C	E	24·50	24·22	− 0·28
,,	14		4	E	J C	38·65	38·36	− 0·29
,,	23		5	J C	E	54·36	53·98	− 0·38
,,	24		4	E	J C	56·10	55·81	− 0·29
November	1		0	J C	E	55·54	55·37	− 0·17
,,	5		1	E	J C	60·41	60·18	− 0·23
,,	7		2	J C	E	2·74	2·46	− 0·28
,,	14		2	E	J C	8·33	8·04	− 0·29
December	3		0	E	J C	17·90	17·62	− 0·28
,,	5		0	J C	E	17·36	17·06	− 0·30
,,	10		2	J C	E	15·77	15·42	− 0·35
,,	11		0	E	J C	15·27	15·10	− 0·17
,,	22		0	E	J C	59·23	58·97	− 0·26
January	11	E and K	0	E	K	38·14	38·10	− 0·04
February	14		3	E	K	42·47	42·40	− 0·07
April	26		5	K	E	7·48	7·46	− 0·02
August	5		2	E	K	35·06	35·06	0·00
October	16		6	E	K	31·37	31·33	− 0·04
December	17		1	K	E	7·98	7·91	− 0·07
October	18	E and P	5	E	P	33·95	33·77	− 0·18
December	22		1	P	E	59·23	59·10	− 0·13
May	21	E and HC	4	E	HC	56·57	56·30	− 0·27
October	16		0	HC	E	31·37	31·08	− 0·29
August	18	C and L	1	C	L	50·54	50·43	− 0·11

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OBSERVATIONS FOR PERSONAL EQUATIONS—*continued.*

Day, 1867.		Observers in order of Seniority.	Interval of nearest Stars.	Order of Observations.		Clock Slow at 0^h Sidereal by Senior Observer.	Clock Slow at 0^h Sidereal by Junior Observer.	Excess of Clock Slow by Junior Observer.
			h			s	s	s
September	3	C and L *cont.*	0	C	L	18·91	18·81	− 0·10
January	8	C and J C	0	C	J C	44·68	44·76	+ 0·08
,,	12		1	J C	C	36·37	36·50	+ 0·13
,,	14		2	J C	C	33·20	33·20	0·00
,,	18		0	J C	C	24·65	24·72	+ 0·07
February	23		0	J C	C	13·08	13·17	+ 0·09
March	15		1	C	J C	9·63	9·62	− 0·01
April	7		1	J C	C	41·58	41·59	+ 0·01
,,	11		1	J C	C	47·22	47·26	+ 0·04
,,	13		1	C	J C	49·77	49·69	− 0·08
,,	15		0	C	J C	52·33	52·25	− 0·08
May	26		3	C	J C	8·05	7·98	− 0·07
August	8		0	C	J C	38·58	38·56	− 0·02
,,	10		1	J C	C	40·03	40·13	+ 0·10
August	12	C and K	0	K	C	41·64	41·91	+ 0·27
September	5		1	C	K	22·41	22·62	+ 0·21
October	9		1	C	K	21·48	21·63	+ 0·15
October	11	C and P	0	P	C	24·41	24·58	+ 0·17
,,	19		5	P	C	35·14	35·17	+ 0·03
December	4		3	C	P	17·64	17·78	+ 0·14
March	24	C and H C	4	H C	C	26·58	26·71	+ 0·13
May	21		3	C	H C	56·22	56·30	+ 0·08
November	13		0	C	H C	7·48	7·50	+ 0·02
May	22	L and JC	1	L	J C	58·43	58·51	+ 0·08
July	15		0	L	J C	5·52	5·74	+ 0·22
August	15		0	J C	L	44·73	44·85	+ 0·12
July	23	L and H C	3	L	H C	19·07	19·25	+ 0·18

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Then, adding all the equations in each group, we get the following equations, in which each observer's personal equation is successively affected by a large co-efficient :—

12 S − 2 E − 2 C − 6 J C − P	= + 0ˢ·75
69 E − 2 S − 10 C − 7 L − 23 J C − 6 K − 2 P − 2 H C	= +15·39
52 C − 2 S − 10 E − 2 L − 13 J C − 3 K − 3 P − 3 H C	= − 6·45
15 L − 7 E − 2 C − 3 J C − 3 H C	= − 4·05
74 J C − 6 S − 23 E − 13 C − 3 L − 5 K − 7 P − 5 H C	= − 9·25
22 K − 6 E − 3 C − 5 J C − 2 P − 3 H C	= + 1·79
17 P − S − 2 E − 3 C − 7 J C − 2 K	= + 1·43
21 H C − 2 E − 3 C − 3 L − 5 J C − 3 K	= − 0·65

Solving these equations by successive approximations, that is, by first substituting in each equation the approximately known values of all the personal equations, except that which has the largest co-efficient, thence deducing the value of that one personal equation, then using that deduced value for substitution in the other equations, and repeating the process, we get finally the following values :—

S = + 0ˢ·02	E = + 0ˢ·15	C = − 0ˢ·13	L = − 0ˢ·24	J C = − 0ˢ·10
	K = + 0·08	P = + 0·05	H C = − 0·08	

or, restoring D :—

D − S = − 0ˢ·02	D − E = − 0ˢ·15	D − C = + 0ˢ·13	D − L = + 0ˢ·24
D − J C = + 0·10	D − K = − 0·08	D − P = − 0·05	D − H C = + 0·08

The observations by eye and ear since 1859 are insufficient in number to give a trustworthy determination of the personal equations of transits observed by that method. Those determined in 1858 and 1859 (Introduction to *Greenwich Observations*, 1858, page xl, and 1859, page xlii,) were the following :—

D − E	=	+ 0ˢ·03
D − C	=	+ 0·01
D − L	=	+ 0·38
D − J C	=	+ 0·14

None of these, however, have been applied in 1867.

The personal equations, as applicable to the chronographic method of observing, have been applied to the results of transits, in the ledger-results of stars, and in the collected results for the Sun, Moon, and Planets, whenever they were needed throughout the year 1867.

In the standing foot-note on each page is given the duration of passage for the semidiameter of a planet when only one limb has been observed. It is found as follows :—

For the Sun, a correction of − 0ˢ·04, derived from the observations of several preceding years, is applied to the Nautical Almanac semidiameter.

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For the Moon and Mercury, the duration is taken without alteration from the Nautical Almanac.

For Venus, a correction is applied to the Nautical-Almanac-semidiameter, determined from observations made with the Transit-Circle from 1851 to 1862. The investigation by Mr. Stone will be found in the Notices of the Royal Astronomical Society, Vol. XXV. No. 3. The correction which has been applied additively to the Nautical-Almanac-semidiameter during the year 1867, is

$$+ 0^{s}\cdot026 + 0\cdot027 \times \text{tabular duration of passage of semidiameter.}$$

For Mars a correction has been applied, derived from the transits of both limbs near the opposition of 1867. From ten observations, extending from 1866, December 13, to 1867, February 14, both inclusive, the mean error of the duration of transit of the diameter given in the Nautical Almanac was found to be $-0^{s}\cdot05$, corresponding to a tabular duration of transit equal to $1^{s}\cdot21$. Hence, the correction to be applied additively to the tabular duration of transit of semidiameter is found to be $0^{s}\cdot044 \times$ duration of transit of semidiameter.

For Jupiter and Saturn, both limbs are always observed, if possible; but if, through accident or necessity, only one limb is observed, the duration of passage of the semidiameter is obtained by applying to the value given in the Nautical Almanac a correction derived from a few of the neighbouring observations. The elements of computation are given in the notes.

The *twentieth* column contains the right ascension of the center of the body observed: it is formed by adding the time from the sixteenth column, the clock-error at 0^{h} next preceding from the nineteenth column, the proportional part of the rate in the same column corresponding to the right ascension, and the duration of the passage of the semidiameter from the foot-notes. No result is set down for a clock-star, unless at least four clock-stars, distributed over several hours of right ascension, have been observed; no result is set down for Polaris, δ Ursæ Minoris, Cephei 51, or λ Ursæ Minoris, unless Polaris, δ Ursæ Minoris, or Cephei 51, has been observed at opposite passages; and no result is set down for other close circumpolar stars, unless there has been a good determination of the azimuthal error on the day of observation.

The *twenty-first* column contains the correction with its proper sign, as it is to be applied for reducing the apparent right ascension of each star at the time of observation to the mean right ascension on the 1st of January 1867. It is computed in the following manner.

For stars in the list of the Nautical Almanac, the mean R. A. of the Nautical Almanac is subtracted from the apparent R. A. of the Nautical Almanac (corrected, in the case of Polaris, Cephei 51 (Hev.), δ Ursæ Minoris, and λ Ursæ Minoris, for the Moon's longitude): the sign of the quantity so found is changed.

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The corrections for personal equation have been invariably applied in this section when the observations of stars for clock-error have been made by one observer, and those of any other object requiring reduction, on the same day, by another observer.

The rules for the nomenclature of stars are the same as those in the section of the *Transits observed*, detailed in page xxvi, but they are more rigorously followed. The stars in Weisse's Catalogue are referred to under the initials W.B., which stand for Weisse's Bessel. The stars in Oeltzen's Catalogue of Argelander's Zones are referred to under the abbreviation Oeltz. Arg. The stars in Carrington's Red Hill Catalogue are referred to under the abbreviation R. H. Cat.

§ 4. *Observations of Zenith Distance with the Transit-Circle*, page (1) to (111).

In order to include the whole of the reductions belonging to a single observation on one page, the elements for those reductions which are not frequently changed, and which do not require tabular arrangement, are given in the foot-notes: these are;—correction for runs; formulæ used in computing micrometer-corrections, corrections for curvature of path, and inclination of wire; and Zenith-Point-corrections.

The corrections for planets, including change of N.P.D. for reduction to the meridian, parallax, and semidiameter, and also the corrections for reducing the apparent places of stars to mean places, are exhibited in tabular arrangement at the lower part of each page, opposite to the reference-numbers which correspond to the observations in the upper part of the page.

DAY.—The day of observation always begins with the Sun's transit.

NO. FOR REFERENCE.—This column requires no explanation.

NAME OF OBJECT.—The nomenclature of stars follows the same general rule as in the section of *Transits observed*, &c., except that, as a last resource, the place of the star is defined by its right ascension, which is generally accurate to 1^s. The letters N.L. and S.L. denote north and south limbs of planets, and N.C. and S.C. the north and south cusps of Mercury or Venus. The words *Nadir Observation* indicate an observation of the image of the horizontal or zenith-distance wire as seen by reflexion in a trough of mercury, as is described in page viii. For other objects, the letter R. denotes that the object is observed by reflexion in the trough of mercury.

READINGS OF THE SIX MICROSCOPE-MICROMETERS.—The application of the letters is the same as in the Observations of preceding years from 1836: the observer, beginning with the northern horizontal microscope, and passing the upper microscopes, the southern horizontal, and the lower ones, in the direction of the circle's circumference, reads them in the order A, C, E, B, D, F. These readings in the observing books are placed in the order $\begin{matrix}\text{A, C, E}\\ \text{B, D, F}\end{matrix}$; from which form they are easily changed into the order of printing.

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Each pair of adjacent readings, therefore, is the pair of readings at the opposite ends of a diameter. The number of integral revolutions is given in the fifth column only. Occasionally the number of revolutions expressed in this column does not apply unchanged to all the microscopes, on account of the difference of their readings; but since the readings never differ by more than four or five tenths of a revolution, and the order of the more conspicuous differences is noted at the bottom of the page, this will occasion no ambiguity. The reading of the pointer-microscope is omitted for the sake of economy of space, but it may be inferred from the Zenith-Point given in full at the bottom of each page, and from the deduced Zenith-Distance.

It is proper now to explain how the revolutions and parts of revolutions of the microscope-micrometers are converted into arc.

First, it may be premised that, as one revolution of each microscope-micrometer does not differ extravagantly from 1′ on the limb of the circle, we may consider each revolution as a nominal minute. Next, supposing the number of integral revolutions, as shown by each microscope, to be the same for all, we ought, in order to obtain the mean of the fractions of a revolution, to add together the subdivisions as shown by the different micrometer-heads, and divide the sum by 6. Thirdly, as the subdivisions are in the decimal scale, we should then multiply this mean by 60, to reduce it to sexagesimal seconds. It is evident thus that the number of nominal seconds to be attached to the nominal minute will be found by simply adding together the subdivisions on the micrometer-heads, and shifting the decimal point.

From the ordinary observations of runs (those for the year 1867 being given at page (114) &c. of the present volume), it is known that the screws of the micrometers are so sensibly equal that, in the reduction of the observations, it is sufficient to take the mean of the six readings, and to apply to it the mean correction for runs. To do this, the following process is employed. The sum of the runs for the six microscopes never differs materially from $29^r{\cdot}3$. Now, if the correction, by which each revolution of a micrometer may be converted into a minute of arc, were exactly $\frac{1}{50}$ part of the reading, then the sum of the runs would be $\frac{50}{51} \times 30^r{\cdot}000$, or $29^r{\cdot}4118$. It is not likely that the sum of the runs will ever amount to this quantity; and the variable correction, after adding $\frac{1}{50}$ part to the mean of the readings of the microscopes, will therefore always be additive. To determine this quantity, let the sum of the runs be $29^r{\cdot}412 - x$. Then the true reading in seconds of space, corresponding to a nominal reading of r'' (including the value both of the nominal minutes and of the subdivisions of the nominal minute) will be

$$r'' \times \frac{30{\cdot}000}{29{\cdot}412 - x}$$

or

$$r'' \left\{ 1 + \frac{1}{50} + 0{\cdot}03468 \times x \right\}$$

Hence the correction, after adding $\frac{1}{50}$ part of the mean of readings, will be $+ r\,x \times 0''{\cdot}03468$. For the purpose of calculating this quantity easily by the ordinary propor-

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accidental errors, a new telescope-micrometer was prepared by Mr. Simms, and has been in use since 1867, July 10.

To determine the value of the micrometer-revolution, on July 12 the telescope was directed to the nearly horizontal wire of the southern Reversed Telescope, and was placed so as to give Circle Readings (approximately) alternately of 89°. 29′ and 89°. 34′; the microscope-micrometers were read and corrected as usual; and the reading of the telescope-micrometer was taken, which was required to produce coincidence of its wire with the image of the wire of the Reversed Telescope. The observations were under the direction of Mr. Dunkin. The mean of 42 intervals thus measured gave one revolution of telescope-micrometer = 34″·526.

On July 31, after relieving the micrometer from a very slight constraint, observations were made by Mr. Stone for ascertaining the validity of this revolution-value through several revolutions. It appeared that, with different indexes of micrometer-revolutions, the following corrections were necessary, to refer the complete results (in the form of Results of Zenith Distance Observations) to the same mean:—

	r		"
Micrometer-reading	14,	correction required appeared to be	− 0·19
„ „	19,	„ „	0·00
„ „	22,	„ „	− 0·16
„ „	27,	„ „	+ 0·35

The corrections apparently required are too small to be adopted for use.

On 1868, March 11, observations were made by Mr. Dunkin (as before) to determine whether there is any appreciable difference of results, according as the screw is turned to increase readings or to diminish readings. The following are the results:—

	Micrometer-head turned so that readings increase.		Micrometer-head turned so that readings diminish.
	h		h
Separate readings	20·423	....	20·421
	·420	....	·420
	·420	....	·415
	·417	....	·418
	·419	....	·417
	·414	....	·413
	·411	....	·412
	·409	....	·412
	·409	....	·410
	·410	....	·412
Means..	20·415	....	20·415

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Observations were also made by Mr. Dunkin (as before) to determine whether the separate portions of the screw's revolution are sensibly different. The means of the readings are as follows:—

Readings of Collimator-micrometer.	Readings of Telescope-micrometer.	Intervals.	Readings of Collimator-micrometer.	Readings of Telescope-micrometer.	Intervals.
r	r	r	r	r	r
·000	17·998	0·501	·000	18·295	0·501
·720	18·499		·720	18·796	
·000	18·505	0·504	·000	18·781	0·501
·720	19·009		·720	19·282	
·000	19·028	0·504	·000	19·289	0·501
·720	19·532		·720	19·790	
·000	19·548	0·502	·000	19·791	0·504
·720	20·050		·720	20·295	
·000	20·036	0·502	·000	20·297	0·501
·720	20·538		·720	20·798	
·000	20·563	0·501	·000	20·802	0·505
·720	21·064		·720	21·307	
·000	21·046	0·500	·000	21·277	0·502
·720	21·546		·720	21·779	
·000	21·560	0·503	·000	21·799	0·500
·720	22·063		·720	22·299	
·000	21·998	0·502	·000	22·303	0·504
·720	22·500		·720	22·807	
·000	22·555	0·506	·000	22·791	0·503
·720	23·061		·720	23·294	
·000	23·061	0·505	·000	23·307	0·504
·720	23·566		·720	23·811	

VERTICAL WIRE AT WHICH OBSERVATION IS MADE.—Omitting, in this Section, all reference to the wires Q, R, S, U, V, W, (page xxvii) adapted to galvanic observation of transits, the telescope contains seven vertical or transit wires N, O, P, T, X, Y, Z, here called 1, 2, 3, 4, 5, 6, 7, placed at sensibly equal intervals of about 14ˢ for transit of an equatoreal star, and the central or 4th wire is so nearly in the meridian as to prevent the necessity of any correction to the observed circle-reading when the body is observed at the passage over that wire. In that case, the only corrections which are required to the mean of the microscope-micrometer-readings (when converted into arc and combined with the equivalent for the telescope-micrometer-reading) are those arising from errors of division of the graduated circle, and from astronomical flexure of the telescope. When the body is not observed at the central wire, additional corrections are required, to be mentioned on page lxii.

CORRECTIONS FOR ERROR OF DIVISION AND FOR FLEXURE OF TELESCOPE.—The errors due to these causes were elaborately investigated in 1851 and 1852, and a full account of the processes employed in the investigations will be found in the detailed accounts

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OBSERVATIONS FOR THE DETERMINATION OF THE ASTRONOMICAL FLEXURE OF THE TELESCOPE OF THE TRANSIT-CIRCLE—*continued.*

Month and Day, 1867.	Order of Observation.	Concluded Circle Reading at bisection of Wire of North Collimator.	Mean Concluded Circle Reading, North Collimator.	Order of Observation.	Concluded Circle Reading at bisection of Wire of South Collimator.	Mean Concluded Circle Reading, South Collimator.
		° ′ ″	° ′ ″		° ′ ″	° ′ ″
May 13	1	269. 34. 49·86		2	89. 34. 50·47	
	3	49·78		4	50·66	
	5	49·83		6	50·27	
	7	49·60		8	50·37	
	9	49·41	269. 34. 49·59	10	50·34	89. 34. 50·30
	11	49·41		12	50·28	
	13	49·53		14	50·47	
	15	49·40		16	50·42	
	17	49·63		18	50·31	
	19	49·45		20	50·73	
	21	269. 34. 49·41		22	89. 34. 50·06	
	23	49·50		24	50·24	
	25	49·04		26	50·57	
	27	48·76		28	49·93	
	29	49·29	269. 34. 49·09	30	50·51	89. 34. 50·09
	31	48·88		32	50·23	
	33	48·90		34	50·46	
	35	49·25		36	50·68	
	37	48·88		38	50·35	
	39	48·95		40	50·34	
	41	269. 34. 48·89		42	89. 34. 49·81	
	43	48·91		44	50·04	
	45	49·36		46	50·19	
	47	49·39		48	49·76	
	49	48·82	269. 34. 49·06	50	49·97	89. 34. 49·82
	51	48·88		52	50·23	
	53	48·93		54	50·08	
	55	49·20		56	49·89	
	57	48·98		58	49·99	
	59	49·26		60	50·10	

The Observations of April 25 give for the bisection of the wire of—

North Collimator . . 269°. 34′. 52″·54.
South Collimator . . 89°. 34′. 53″·22.

And the correction for Astronomical Horizontal Flexure = −0″·34.

The Observations of May 13 give for the bisection of the wire of—

North Collimator . . 269°. 34′. 49″·25.
South Collimator . . 89°. 34′. 50″·07.

And the correction for Astronomical Horizontal Flexure = −0″·41.

The mean of these results, −0″·37, has been adopted for use during the year 1867.

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The product of this quantity by the sine of the zenith-distance south has been incorporated with the mean of those numbers in the preceding table which apply to the six divisions that are viewed simultaneously under the six microscopes. The resulting corrections, which are contained in the following table, have been applied additively to all circle-readings throughout the year 1867. The argument in this table is the Zenith Distance South.

DIVISION CORRECTION + FLEXURE CORRECTION.

(*Always Additive.*)

Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.	Pointer Reading.	Corr.
°	"	°	"	°	"	°	"	°	"	°	"	°	"	°	"	°	"	°	"
0	0·94	36	0·87	72	0·84	108	1·05	144	1·29	180	0·94	216	1·29	252	1·56	288	1·77	324	1·71
1	0·96	37	0·94	73	0·89	109	1·01	145	1·23	181	0·98	217	1·38	253	1·59	289	1·71	325	1·65
2	0·98	38	1·04	74	0·97	110	0·93	146	1·15	182	1·00	218	1·50	254	1·69	290	1·63	326	1·57
3	0·95	39	1·11	75	1·02	111	0·88	147	1·05	183	0·99	219	1·57	255	1·74	291	1·56	327	1·47
4	0·92	40	1·09	76	1·08	112	0·63	148	0·97	184	0·98	220	1·57	256	1·80	292	1·31	328	1·37
5	0·99	41	1·08	77	1·15	113	0·36	149	0·90	185	1·05	221	1·56	257	1·87	293	1·04	329	1·28
6	1·09	42	1·13	78	1·11	114	0·43	150	0·99	186	1·17	222	1·63	258	1·83	294	1·11	330	1·15
7	1·17	43	1·15	79	1·15	115	0·62	151	0·72	187	1·27	223	1·65	259	1·87	295	1·28	331	1·08
8	1·17	44	1·12	80	1·36	116	0·66	152	0·74	188	1·27	224	1·64	260	2·08	296	1·34	332	1·08
9	1·11	45	1·12	81	1·42	117	0·64	153	0·67	189	1·23	225	1·64	261	2·16	297	1·30	333	0·99
10	1·13	46	1·08	82	1·32	118	0·59	154	0·62	190	1·27	226	1·60	262	2·06	298	1·25	334	0·96
11	1·17	47	1·09	83	1·21	119	0·59	155	0·78	191	1·31	227	1·63	263	1·95	299	1·23	335	1·10
12	1·12	48	1·13	84	1·13	120	0·62	156	0·93	192	1·28	228	1·69	264	1·87	300	1·26	336	1·23
13	1·16	49	1·08	85	1·07	121	0·65	157	1·02	193	1·32	229	1·64	265	1·81	301	1·29	337	1·30
14	1·24	50	0·99	86	0·99	122	0·67	158	1·14	194	1·42	230	1·57	266	1·73	302	1·31	338	1·40
15	1·29	51	0·93	87	0·89	123	0·66	159	1·21	195	1·47	231	1·51	267	1·63	303	1·28	339	1·47
16	1·34	52	0·68	88	0·80	124	0·64	160	1·20	196	1·54	232	1·26	268	1·54	304	1·26	340	1·46
17	1·40	53	0·41	89	0·72	125	0·72	161	1·20	197	1·62	233	0·99	269	1·46	305	1·32	341	1·44
18	1·35	54	0·47	90	0·60	126	0·83	162	1·26	198	1·59	234	1·07	270	1·34	306	1·43	342	1·50
19	1·39	55	0·65	91	0·53	127	0·93	163	1·29	199	1·63	235	1·25	271	1·27	307	1·51	343	1·51
20	1·59	56	0·69	92	0·54	128	0·93	164	1·28	200	1·85	236	1·31	272	1·28	308	1·51	344	1·48
21	1·66	57	0·66	93	0·46	129	0·88	165	1·29	201	1·92	237	1·28	273	1·20	309	1·46	345	1·47
22	1·56	58	0·60	94	0·42	130	0·91	166	1·25	202	1·82	238	1·24	274	1·16	310	1·49	346	1·43
23	1·44	59	0·59	95	0·57	131	0·96	167	1·28	203	1·72	239	1·23	275	1·31	311	1·52	347	1·44
24	1·35	60	0·62	96	0·71	132	0·92	168	1·33	204	1·65	240	1·26	276	1·45	312	1·48	348	1·49
25	1·28	61	0·65	97	0·79	133	0·97	169	1·29	205	1·60	241	1·29	277	1·53	313	1·51	349	1·43
26	1·19	62	0·66	98	0·90	134	1·07	170	1·21	206	1·53	242	1·32	278	1·64	314	1·59	350	1·35
27	1·10	63	0·64	99	0·97	135	1·12	171	1·16	207	1·42	243	1·30	279	1·71	315	1·64	351	1·28
28	1·00	64	0·61	100	0·97	136	1·18	172	0·92	208	1·34	244	1·29	280	1·69	316	1·70	352	1·02
29	0·91	65	0·69	101	0·96	137	1·26	173	0·65	209	1·27	245	1·35	281	1·68	317	1·76	353	0·75
30	0·79	66	0·79	102	1·02	138	1·22	174	0·73	210	1·15	246	1·47	282	1·74	318	1·72	354	0·81
31	0·71	67	0·88	103	1·04	139	1·27	175	0·92	211	1·09	247	1·56	283	1·76	319	1·75	355	0·98
32	0·71	68	0·88	104	1·02	140	1·48	176	0·97	212	1·11	248	1·56	284	1·74	320	1·96	356	1·03
33	0·62	69	0·83	105	1·02	141	1·56	177	0·95	213	1·04	249	1·51	285	1·74	321	2·02	357	0·99
34	0·58	70	0·85	106	0·98	142	1·46	178	0·91	214	1·00	250	1·55	286	1·70	322	1·92	358	0·93
35	0·73	71	0·89	107	1·01	143	1·36	179	0·90	215	1·15	251	1·59	287	1·71	323	1·80	359	0·92

In pages {22} and {25} of the detailed accounts of the Transit-Circle before cited mention is made of an apparatus for the investigation of the errors of every 5′ of each degree of the circle. The apparatus itself consists simply of the insertion, in the micrometer with which the spaces of 1° were compared, of two wire-crosses at an

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APPARENT ZENITH-DISTANCE.—The numbers in this column are found by adding the Zenith-Point-Correction to the Concluded Meridional Circle-Reading; when the sum exceeds 270° (denoting that the object is between the zenith and the north horizon), the complement to 360° is taken, and the negative sign is attached to it; for stars observed by reflexion, the sum is subtracted from 180°, and the remainder, with its algebraical sign, is the apparent zenith-distance. When the Moon has been observed at several wires, the mean of all the concluded circle-readings is used to form the Zenith-Distance.

When both limbs of the Moon are observed, it usually happens that one of them is slightly defective from the failure of illumination by the Sun. The necessary correction (which is not applied in this column, but which must be applied with others in order to form the numbers in the column of *Geocentric N. P. D. of Center*) is ascertained by computation in the following manner:—When the Moon is horned, let θ be the angle which the circle joining the cusps makes with the meridian; δ_s the Sun's declination, and δ_m the Moon's declination as seen at Greenwich: P the Sun's hour angle at the Moon's Transit: then

$$\text{Tan } \theta = \text{Cosec } P \,.\, \text{Cos } \delta_m \,.\, \text{Tan } \delta_s - \text{Cot } P \,.\, \text{Sin } \delta_m ;$$

and the correction required will be

$$\text{Moon's semidiameter} \times \text{versin } \theta.$$

For Mercury and Venus, when horned, the investigation of the correction for defective illumination assumes the same form as for the Moon.

If the Moon be gibbous, as is the case in the greater number of instances, draw a great circle through the center of the Moon, at right angles to the meridian passing through the Moon, and let it meet the meridian passing through the Sun; then the intersection of this circle with the Sun's meridian will determine the place of a fictitious Sun, which would equally illuminate both limbs of the Moon when on the meridian; and the elevation or depression of the true Sun above or below the great circle joining the Moon and fictitious Sun, measured in a plane at right angles to that circle, will represent the angle by which the lowest or highest part of the illuminated hemisphere is distant from the limb, and therefore the angle whose versed sine multiplied into the Moon's semidiameter is the correction required.

Let then P be the North Pole of the heavens, M the Moon on the meridian of Greenwich, and S and S_1 the true and fictitious Suns, and imagine the triangles formed by great circles joining these. Let also δ_1 be the declination of the fictitious Sun, θ_1 the arc joining the true and fictitious Suns, and θ the perpendicular arc before mentioned.

Then
$$\text{Tan } \delta_1 = \text{Tan } \delta_m \,.\, \text{Cos } MPS_1 \,.$$

And
$$\theta_1 = \delta_s - \delta_1 \,.$$

Also
$$\text{Sin } \theta = \text{Sin } \theta_1 \,.\, \text{Sin } MS_1P$$
$$= \text{Sin } \theta_1 \frac{\text{Sin } MP}{\text{Sin } S_1P}$$
$$= \text{Sin } \theta_1 \frac{\text{Cos } \delta_m}{\text{Cos } \delta} \,.$$

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Whence θ is found; and the correction required is

Moon's semidiameter × vers θ.

In either case the North limb is fully illuminated if θ is positive, and the South limb if θ is negative.

In the cases of Mercury and Venus when gibbous, or of Mars and other planets sensibly gibbous, the investigation takes the following form. The angle θ being found as above, the length of the straight line drawn from the Sun perpendicular to the plane represented by the great circle above mentioned, is equal to Distance of Earth from Sun × sin θ; and therefore if φ be the apparent angular distance of the Sun from that plane as seen from the planet, the value of φ is determined by the equation

$$\text{Sin } \varphi = \frac{\text{Length of perpendicular line}}{\text{Dist. of Planet from Sun}} = \frac{\text{Dist. of Earth from Sun}}{\text{Dist. of Planet from Sun}} \times \sin \theta.$$

The angle φ represents in this case the angle by which the lowest or highest point of the illuminated hemisphere is distant from the limb as viewed by an observer anywhere in the plane of this great circle, and the correction therefore will be

Planet's semidiameter × versin φ.

BAROMETER.—The barometer is by Newman. Its scale is divided by vernier to 0·002 inch; but it is not usually necessary to read it to a smaller quantity than 0·01 inch for the computation of refraction. The movement of the vernier displaces a plunger which enters into the cistern of mercury, and thus maintains it constantly at the same level. This construction is not well adapted to a merely meteorological instrument, which constantly requires a visible reference to the lower surface of the mercury, but it is exceedingly convenient for the barometer as an astronomical auxiliary, and entirely avoids the risk of error from inadvertent omission of the lower verification, or from friction of a floating index; and is, on the whole, the best that can be employed. From careful comparisons made between 1863, February 6 and 11, the reading of this barometer appears to be greater than that of the Standard Barometer by 0·02 inch. The readings of the barometer have been corrected by this quantity throughout the year.

EXTERIOR THERMOMETER.—This thermometer is by Troughton and Simms. It is mounted on the north front of the Observatory, where it is carried by an arm projecting from the wall to a distance of 4½ feet, at a height of nearly seven feet from the ground.

The following are the results of comparisons with the Standard Thermometer, made on 1861, January 31 :—

Temperatures.	Excess of Reading of Circle Thermometer.
°	°
32·0	0·0
34·0	0·0
36·3	0·0
40·0	0·0
4·21	−0·1

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GEOCENTRIC N. P. D. OF CENTER.—The numbers in this column are found by combining the Apparent Zenith Distance with the Refraction, Parallax, Semidiameter, and Assumed Colatitude 38°. 31′. 21″·80.

CORRECTION TO MEAN N. P. D. OF STARS.—The corrections for reducing the Apparent N.P.D. of the stars to the Mean North Polar Distances for the beginning of 1867, are given at the lower part of the page. For the stars in the list of the Nautical Almanac, the correction is found by subtracting the mean declination of the Nautical Almanac from the apparent declination of the same. For stars not in the Nautical Almanac, the numbers required to change Mean N.P.D. to Apparent N.P.D. are computed by the formula,

$$E\,e' + F\,f' + G\,g' + H\,h' + L + l' - 300'' + \mu'\,t$$

(where μ' is the annual proper motion in N.P.D. taken from Mr. Main's or Mr. Stone's papers in the *Memoirs of the Royal Astronomical Society*, or from the *British Association Catalogue*, and t is the fraction of a year corresponding to the day of observation) which is derived from the well-known formula

$$A\,a' + B\,b' + C\,c' + D\,d' + \mu'\,t$$

or its equivalent

A.sin N.P.D. × numb. (log = 9·6376) − A. sin R. A. cos N.P.D. + B. cos R. A. cos N. P. D. + C. cos R. A. × numb. (log = 1·3020) − D. sin R. A + μ' t.

The formulæ for E, F, G, H, L, have been already given (page l): $e' = a' + 1{\cdot}2$, $f' = b' + 1{\cdot}2$, $g' = c' + 25$, $h' = d' + 1{\cdot}2$, $l' = 210 - 25 \times e' - 25 \times f' - 1{\cdot}2 \times g' - 25 \times h'$. The values of the day-constants log. E, log. F, log. G, log. H, and L, are given in the Nautical Almanac. The values of the star-constants log. e′, log. f′, log. g′, log. h′, and l′, for the stars contained in the Seven-Year Catalogue, are printed in that Catalogue. For other stars the star-constants will be found in the annual Catalogues for the years 1861 to 1866, or in that included in the present volume.

The sign of the computed quantity is changed before application.

§ 5. *Runs of each Microscope-Micrometer of the Transit-Circle; and Zenith Points of the Transit-Circle, in the Year* 1867; page (113) to (125).

With regard to the *Runs of the Microscopes*, the columns under A, B, C, D, E, F, contain respectively the number of revolutions of each micrometer which measures an arc of 5′ on the circle; and the last column gives the sum of these numbers, and exhibits the number of revolutions which, for the mean of the microscopes, measures an arc of 30′, on the supposition that the screws of the micrometers have sensibly equal values. In the first calculations for the reduction of the observations it is assumed that the space

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of 30′ corresponds approximately to $\frac{50}{51} \times 30^{r}{\cdot}000$, or to $29^{r}{\cdot}4118$; and, the fiftieth part of the micrometer-reading for the mean of the microscopes being added to the micrometer-reading, the remaining correction, depending on the difference between the values in the last column of the table in question and $29^{r}{\cdot}4118$, is computed in the way that has been explained (page liii).

With regard to the Table of *Zenith Points*, the following explanation will be sufficient.

Whenever observations of stars have been made by reflexion, the results for zenith point derived from them have been combined with those derived from the observations of the reflected image of the wire. The results are always divided into three groups, viz.: those resulting from north stars, those from south stars, and those from wire-observations; and, to prevent too much weight being given to those divisions of the circle which are always under the microscopes for the wire-observations, to each result derived from a star-observation there is attributed three times the weight which is attributed to the result of a wire-observation. From the pains taken to equalize the number of observations of stars north and south of the Zenith, no undue weight is, on the average, given to either of these positions; and, on the whole, it is presumed that, by this method of combination, the best possible average result is obtained. This explanation is in a great measure a recapitulation of that given in page lxiii, and is repeated here for the sake of clearness.

§ 6. *Mean North Polar Distances of Stars deduced from each Day's Observations*, page (127) to (155).

The Mean North Polar Distances are found by applying to the North Polar Distances in Section 4 the corrections given for each star in the lower part of the page.

The results of the direct and reflexion observations are kept separate, with a view of ascertaining whether there is discordance between them, as has been frequently observed in the results of other circles; and the results of observations above and below the pole are kept separate, in order to ascertain whether there is any sensible error in the assumed colatitude.

With regard to the first of these points, the means of the groups of Direct-results and Reflexion-results have been taken for all the stars observed: and the algebraical excess of the Reflexion-result over the Direct-result is given in the subjoined table. The weight is a number proportional to the fraction, whose numerator is the product of the numbers of direct and of reflexion observations, and whose denominator is their sum.

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For the purpose of discovering with greater accuracy the law followed by the differences given above, they have been grouped for convenient intervals of North Polar Distance, and the means of the differences corresponding to the means of the North Polar Distances have been taken, the weight for each group being the sum of the weights attributed to the separate values of R − D.

The results are contained in the following Table:—

EXCESS OF REFLEXION-RESULTS ABOVE DIRECT-RESULTS FROM GROUPS OF STARS OBSERVED WITH THE TRANSIT-CIRCLE.

Extent of Group.	Weight.	Mean N. P. D.	Mean Value of R−D.
		° ′	″
Polaris to Bradley 3058	28	4. 15	− 0·87
Piazzi VI. 292 to Bradley 1650	54	11. 43	− 0·60
β Ursæ Minoris to A Draconis.....	62	18. 35	− 0·04
ρ Ursæ Majoris to α Cephei	77	24. 22	− 0·05
β Canum Venaticûm to 61 Cygni	40	50. 16	+ 0·25
ι Lyræ to 24 Leonis Minoris.....	49	57. 2	+ 0·60
ε Andromedæ to δ Coronæ	63	62. 6	+ 0·27
16 Pegasi to 71 Pegasi.....	72	66. 24	+ 0·37
ζ Geminorum to τ Boötis	21	70. 24	+ 1·24

This table indicates with tolerable clearness the law of the values of R − D, the numbers being negative for stars north of the Zenith, and positive for stars south of the Zenith; so that a positive correction is required to Direct Observations south of the Zenith, and a negative correction to Reflexion Observations. Assuming that the correction can be represented by—

$$x + y \cos^2 \text{Z.D. south} \times \sin \text{Z.D. south},$$

it is found by calculation, that the following expressions, when tabulated, will give the values which best agree with the errors in the table above, namely :—

For direct observations

$$+ 0''{\cdot}036 + 0''{\cdot}593 \sin \text{Z.D.} \cos^2 \text{Z.D.}$$

For reflexion-observations

$$- 0''{\cdot}036 - 0''{\cdot}593 \sin \text{Z.D.} \cos^2 \text{Z.D.}$$

For use, these formulæ have been tabulated as follows; and the corrections have been applied to all the observations of Zenith Distance made throughout the year; that is, to the mean result for N.P.D. of each star, and to every North Polar Distance of the Sun, Moon, and Planets in the section of Planetary Results.

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CORRECTION FOR DISCORDANCE OF DIRECT AND REFLEXION RESULTS, 1867.

N. P D.	Corrections to Results of Direct-Observations.	Corrections to Results of Reflexion-Observations.
°	″	″
− 40	+ 0·01	− 0·01
30	− 0·04	+ 0·04
20	0·10	0·10
− 10	0·16	0·16
0	0·19	0·19
+ 10	0·18	0·18
20	0·13	0·13
30	− 0·05	+ 0·05
40	+ 0·05	− 0·05
50	0·15	0·15
60	0·22	0·22
70	0·26	0·26
80	0·26	0·26
90	0·22	0·22
100	0·16	0·16
110	0·09	0·09
+120	+ 0·05	− 0·05

The law assumed for these numbers, it will be remarked, is different from that of the years preceding 1862.

The general system of corrections for R—D which has been followed for many years has been retained in the present volume. A careful examination of the different values obtained in different years has convinced me that the quantity is real, but I am still unable to explain perfectly its origin. So long as the evidence for its existence depended on the Mural Circle only, where the flexure of the telescope could not be independently ascertained, it might be attributed to flexure: but its persistent appearance in the observations with the Transit-Circle (where there is no sensible doubt on the magnitude of flexure of the telescope, and where the corresponding correction has been applied), as well as the general consistency in the results obtained for colatitude in different years, while different values have been used for $\frac{R-D}{2}$, seems to prove that it does not depend on mechanical disturbance of the instrument. On these points I would refer the reader to the Introduction to the Seven-year Catalogue; or to a paper in volume xxxii. of the *Memoirs of the Royal Astronomical Society*, headed, "On the Discordance between Reflexion and Direct Observations in Zenith Distance."

The observations of circumpolar stars have been reduced for the determination of latitude in the same manner as in preceding years. The computations below are

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CORRECTION TO ASSUMED LATITUDE, 1867—*concluded.*

Star's Name, and Mode of Observation.	Number of Obs.	N. P. D. Uncorrected.	Result corrected for Discordance.	Number of Obs.	Concluded N. P. D. on assumed Latitude.	Number of Obs.	Algebraic Sum of Determinations.	Weight.	Product.
γ Ursæ Majoris...D.	2	35°. 33′. 56″·34	56″·34	2	56″·34	6	″ − 1·19		″
S.P....D.	4	−35. 33. 57·52	−57·53	4	−57·53				
η Ursæ Majoris ...D.	7	40. 1. 19·91	19·96	7	19·96	12	+ 0·18		
S.P....D.	5	−40. 1. 19·79	−19·78	5	−19·78				
ι Ursæ Majoris ...D.	1	41. 26. 19·48	19·54	1	19·54	5	− 1·16		
S.P....D.	4	−41. 26. 20·72	−20·70	4	−20·70				
f^1 Cygni .....D.	1	42. 59. 47·98	48·06	1	48·06	3	− 0·33		
S.P....D.	2	−42. 59. 48·41	−48·39	2	−48·39				
β Aurigæ.....D.	2	45. 4. 12·54	12·64	2	12·64	3	+ 0·50		
S.P....D.	1	−45. 4. 12·16	−12·14	1	−12·14				
α Cygni .....D.	4	45. 11. 36·94	37·04	4	37·04	5	+ 0·39		
S.P....D.	1	−45. 11. 36·68	−36·65	1	−36·65				
μ Ursæ Majoris...D.	1	47. 49. 58·61	58·74	1	58·74	2	− 2·22		
S.P....D.	1	−47. 50. 1·01	−60·96	1	−60·96				
β Canum Venaticûm D.	5	47. 55. 10·00	10·13	9	9·97	10	− 2·79		
R.	4	9·89	9·76						
S.P....D.	1	−47. 55. 12·78	−12·76	1	−12·76				

The last nine stars have not been used for correcting the colatitude.

If z be the correction to the assumed colatitude, $2z$ + algebraical sum of determinations ought to be equal to 0. Combining the whole with the weights above attached to them, $2z + 0''{\cdot}039 = 0$, or $z = -0''{\cdot}02$. From this the colatitude would be $= 38°.31'.21''{\cdot}78$.

§ 7. *Observations of Azimuth with the Altazimuth*, page [i] to [li].

The first *eleven* columns, on the left-hand page, require little explanation, except that by "Horizontal Transit" is meant the resolved horizontal part of the inclined movement of the object in passing through the field of the telescope. In making the observation, the instrument is clamped in azimuth, and the moderately-slow-motion screw of the Vertical Circle is used to make the transit of the object take place over the middle of each vertical wire. The observations have in general been made by the chrono-

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graphic method, excepting at times when the galvanic apparatus has been out of order. Such cases are always distinctly marked whenever they occur.

The *twelfth* column is occupied by the personal equation of each observer, referred to Mr. Dunkin as a standard, deduced from the observations of transits in the year 1866 (see Introduction to Greenwich Observations 1866, page xlix), as the observations of 1867 are not available for the daily reductions of 1867. This personal equation is applied to the mean of observed transits (without application of any correction for omitted wires, if the transit is imperfect) to form the "Concluded Clock Time" in the *thirteenth* column.

The column *following* the "Concluded Clock Time" contains the error of the clock; that is, of Hardy, the Transit-Clock, when the observations are made by galvanic contact; or of Graham 1, when they are made by eye and ear. The number of seconds by which the Transit Clock is slow is, before application, corrected by the quantity $-0^{s}\cdot03$ for the difference of longitude between the position of the Transit-Circle and that of the Altazimuth. This difference of longitude has been obtained by measurement on the plan of the Observatory, of which a reduced copy is attached to the volume for 1862.

By the application of the Clock Error to the Clock Time, the Sidereal Time in the *next* column is formed.

The last *four* columns contain the readings of the micrometers of the four microscopes of the Horizontal Circle. The designations *a*, *b*, *c*, *d*, are so distributed among these microscopes that the observer, walking round the pier in the direction of the Sun's diurnal movement, passes them in the order *a*, *b*, *c*, *d*.

From the readings of the microscope-micrometers in the *last four* columns on the left-hand page, together with the pointer-reading (which is not inserted in the printed columns), the Concluded Reading of Horizontal Circle in the *first* column of the right-hand page is formed in this manner:—Suppose it is found, on examining the runs, that an arc of $5'$ requires $7^{\text{rev.}}\cdot8 - p$ of micrometer *a*, $7^{\text{rev.}}\cdot7 - q$ of micrometer *b*, $7^{\text{rev.}}\cdot9 - r$ of micrometer *c*, and $8^{\text{rev.}}\cdot0 - s$ of micrometer *d*. Then *p*, *q*, *r*, *s*, are very small quantities. Now, suppose that the micrometer-readings in any observation are *w*, *x*, *y*, *z*: these four quantities being very nearly equal. Then the Concluded Circle-Reading ought to be

$$\frac{5'}{4} \times \left\{ \frac{w}{7\cdot8-p} + \frac{x}{7\cdot7-q} + \frac{y}{7\cdot9-r} + \frac{z}{8\cdot0-s} \right\}$$

or

$$\frac{5'}{4} \times \left\{ \frac{w}{7\cdot8} + \frac{x}{7\cdot7} + \frac{y}{7\cdot9} + \frac{z}{8\cdot0} \right\} + \frac{5'}{4} \times \left\{ \frac{w}{7\cdot8}\cdot\frac{p}{7\cdot8} + \frac{x}{7\cdot7}\cdot\frac{q}{7\cdot7} + \frac{y}{7\cdot9}\cdot\frac{r}{7\cdot9} + \frac{z}{8\cdot0}\cdot\frac{s}{8\cdot0} \right\}.$$

From the near equality of $\frac{w}{7\cdot8}$, $\frac{x}{7\cdot7}$, &c., and the smallness of *p*, *q*, &c., the factors of *p*, *q*, *r*, *s*, may be considered equal: and the whole expression then becomes

$$w \times \frac{5'}{4\times7\cdot8} + x \times \frac{5'}{4\times7\cdot7} + y \times \frac{5'}{4\times7\cdot9} + z \times \frac{5'}{4\times8\cdot0}$$
$$+ \frac{1}{4}\left\{ w \times \frac{5'}{4\times7\cdot8} + x \times \frac{5'}{4\times7\cdot7} + y \times \frac{5'}{4\times7\cdot9} + z \times \frac{5'}{4\times8\cdot0} \right\} \times \frac{p+q+r+s}{7\cdot85}.$$

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The *fourteenth* column contains the Corrected Reading of Horizontal Circle, as affected by all these corrections.

The *fifteenth* column contains the Concluded Azimuth, measuring from the South towards the West, which is formed by merely subtracting, from the Corrected Reading of Horizontal Circle, the Zero of Azimuth given at the bottom of the page. The method of determining the Zero of Azimuth will be explained in a subsequent section.

In cases wherein both limbs of the Moon have been observed, one of the limbs is usually defective through want of illumination. A correction to the Azimuth (always mentioned in the foot-notes) is applied in all such cases; this correction is computed by finding first the azimuth of a point opposite the Sun, and then multiplying the distance between the azimuth of this point and that of the Moon's limb by the sine of the Sun's zenith distance; the correction is, Versed Sine of this difference multiplied by the Moon's azimuthal semidiameter.

§ 8. *Observations of Zenith Distance with the Altazimuth*, page [liii] to [xciii].

The *first eleven* columns require no explanation, except that by "Vertical Transit" is meant the resolved vertical part of the inclined movement of the object in passing through the field of the telescope. The Vertical Circle is clamped, and the moderately-slow-motion of the Horizontal Circle is used to make the transit of the object take place over the middle of each horizontal wire. The methods of observing and recording the times of transit are the same as for the Horizontal Transits.

The *twelfth* column contains a correction which exists theoretically in all cases, but which in the Azimuths is practically insensible, although for the Zenith Distances, more especially those which are observed near the Meridian, it sometimes becomes important. The nature of it is this: In the subsequent calculations it is tacitly assumed that at the mean of the observed times of passage across the six horizontal wires (supposed free from error of observation), the body was at the point which represents the mean of all the six wires. This, however, is true only on the supposition that the vertical movement of the body is uniform. The correction is investigated in the following manner. In the spherical triangle whose sides are a, b, c, and where C is the angle opposite to c, let a and b be respectively the colatitude of the zenith, and the north polar distance of the object; then C is the hour-angle, and c the zenith distance. Suppose these letters to correspond truly to the position of the object when it passes the geometrical mean of the six horizontal wires: then if δC be the addition (expressed in parts of the radius), or $\delta C_s \times 15 \sin 1''$ (δC_s being expressed in seconds of time), which must be made to C in order to express the hour-angle when the object passes one wire, and if δc (expressed in parts of the radius), or $\delta c_{//} \times \sin 1''$ ($\delta c_{//}$ being

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expressed in seconds of arc), be the addition which must be made to c in order to give the zenith distance of the same wire, we have

$$C+\delta C_{,} \times 15 \sin 1'' = C + \frac{dC}{dc} \cdot \delta c + \frac{d^2 C}{dc^2} \cdot \frac{(\delta c)^2}{2}.$$

Now $\cos a \cdot \cos b + \sin a \cdot \sin b \cdot \cos C = \cos c.$

Therefore $\sin a \cdot \sin b \cdot \sin C \cdot \frac{dC}{dc} = \sin c.$

And $\sin a \cdot \sin b \left\{ \cos C \cdot \left(\frac{dC}{dc}\right)^2 + \sin C \cdot \frac{d^2 C}{dc^2} \right\} = \cos c.$

Whence $\frac{dC}{dc} = \frac{\sin c}{\sin a \cdot \sin b \cdot \sin C}$

and $\frac{d^2 C}{dc^2} = -\frac{\cos C}{\sin C}\left(\frac{\sin c}{\sin a \cdot \sin b \cdot \sin C}\right)^2 + \frac{\cos c}{\sin a \cdot \sin b \cdot \sin C}$

In the case before us C is a small quantity, but no other quantity is small. Hence the first term of $\frac{d^2 C}{dc^2}$ is the principal term, and the second may be neglected in comparison with it. And thus the equation becomes,

$$C + \delta C_{,} \times 15 \sin 1'' = C + \frac{\sin c}{\sin a \cdot \sin b \cdot \sin C} \delta c - \frac{\cos C}{\sin C}\left(\frac{\sin c}{\sin a \cdot \sin b \cdot \sin C}\right)^2 \cdot \frac{(\delta c)^2}{2}.$$

An approximate solution gives $\delta C_{,} \times 15 \sin 1'' = \frac{\sin c}{\sin a \cdot \sin b \cdot \sin C} \delta c.$

Substituting this in the last term, we have

$$C + \delta C_{,} \times 15 \sin 1'' = C + \frac{\sin c}{\sin a \cdot \sin b \cdot \sin C} \delta c - \frac{\cot C}{2} \cdot (\delta C_{,})^2 \cdot (15 \sin 1'')^2;$$

or, putting $C_{,}$ for the value of C in seconds of time,

$$C_{,} + \delta C_{,} = C_{,} + \frac{\sin c}{\sin a \cdot \sin b \cdot \sin C \cdot 15 \sin 1''} \delta c - \frac{\cot C}{2} \cdot (\delta C_{,})^2 \cdot 15 \sin 1'';$$

and, taking the mean of both sides, attributing successively to each the value which it obtains for each of the six wires, we have,

Mean of observed hour-angles in seconds of time =

$$C_{,} + \frac{\sin c}{6 \sin a \cdot \sin b \cdot \sin C \cdot 15 \sin 1''} \Sigma \cdot \delta c - \frac{\cot C \cdot 15 \sin 1''}{12} \cdot \Sigma \cdot (\delta C_{,})^2.$$

As c refers to the point which is the mean of the six wires, $\Sigma \cdot \delta c = 0$. For the convenient expression of the last term, let I be the interval in seconds of time from the first wire to the last. Then, for the first wire, $\delta C_{,} = -\frac{5}{10}$ I; for the second, $\delta C_{,} = -\frac{3}{10}$ I; for the third, $\delta C_{,} = -\frac{1}{10}$ I; for the fourth, $\delta C_{,} = +\frac{1}{10}$ I; for the fifth it is $+\frac{3}{10}$ I; for the sixth, $+\frac{5}{10}$ I. Hence the equation becomes,

Mean of observed hour-angles in seconds of time =

$$C_{,} - \frac{\cot C \cdot 15 \sin 1''}{12} \cdot \frac{70}{100} \times \mathrm{I}',$$

$$= C_{,} - \frac{7}{8} \cdot \sin 1'' \times \cot C \times \mathrm{I}'.$$

Hence the correction to be applied to the mean of the observed hour-angles, in order

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The Thermometer, whose reading is contained in the *twelfth* column, is by Simms: it is placed on the East side of the tower carrying the dome, where its case is carried by long iron rods attached to the brickwork; it is mounted with its bulb inclosed by a double case, which is silvered by electro-plating, allowing a perfectly free passage for the air; it is read from a new window pierced in the eastern side of the Altazimuth observing room. The corrections required for its errors, ascertained by comparison with the Standard Thermometer, are as follows:—

CORRECTION TO ALTAZIMUTH (PORCELAIN) THERMOMETER.

Temperature.	Correction.	Temperature.	Correction.
°	°	°	°
28	+ 0·1	66	+ 0·1
30	0·0	68	+ 0·2
32	0·0	70	+ 0·2
34	0·0	72	+ 0·2
36	− 0·1	74	+ 0·3
38	− 0·1	76	+ 0·2
40	− 0·1	78	+ 0·2
42	− 0·2	80	+ 0·1
44	− 0·2	82	0·0
46	− 0·2	84	0·0
48	− 0·2	86	0·0
50	− 0·1	88	0·0
52	− 0·1	90	+ 0·1
54	− 0·1	92	+ 0·1
56	0·0	94	+ 0·1
58	0·0	96	+ 0·2
60	0·0	98	+ 0·2
62	+ 0·1	100	+ 0·2
64	+ 0·1	102	+ 0·2

An approximate Zenith Distance being obtained by the use of an approximate zenith-point, the refraction in the *thirteenth* column is computed by the use of the tables printed in the Appendix to the Greenwich Observations, 1836, and reprinted (with an addition, including Bessel's supplementary table for Zenith-Distances exceeding 85°) as an Appendix to the Volume for 1853, giving the same results as the tables in the *Tabulæ Regiomontanæ;* with the alterations in the mean refractions for objects near the horizon authorized by Mr. Main's paper cited at page lxvi. This refraction is always additive to the observed Zenith Distance, and therefore it is added to the Reading of the Vertical Circle when the Graduated Face is Right, and subtracted when it is Left.

By the combination of these various quantities, the Corrected Reading in the *four-*

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teenth column is formed. It is to be remarked that this Corrected Reading contains implicitly a constant depending on the assumed zeros of the Level-Scales, and equal to the Level-Indication when the axis of azimuthal rotation is vertical. In this respect it differs from the Corrected Reading of the Horizontal Circle, which contains no such constant.

The Zenith-Point, whose value is given at the foot of each page, is obtained by a process which will be explained hereafter: it is sufficient here to state that it also contains implicitly the same constant depending on the assumed zeros of the Level-Scales. The concluded Zenith-Distance therefore in the *fifteenth* column, which is formed by subtracting the Zenith-Point from the Corrected Reading when the Graduated Face is Right, and by subtracting the Corrected Reading from the Zenith-Point when the Graduated Face is Left, is freed from this constant.

In cases wherein both the upper and the lower limb of the Moon have been observed, one limb is usually defective through want of illumination. A correction for this defect is applied, computed by a method analogous to that used for correcting the Zenith Distance of the defective limb of the Moon when observed on the meridian (see page lxiv). The corrections for defect of illumination are always mentioned in the notes.

§ 9. *Comparison of Tabular Azimuths and Zenith Distances with Azimuths and Zenith Distances observed*, page [xcv] to [cxxxix].

The *three first* columns need no explanation.

The Mean Solar Time in the *fourth* column is formed from the Sidereal Time in the two preceding sections, by the same process as in the formation of Mean Time for the observations of Planets (which will be described hereafter).

The Tabular R.A. of Center in the *fifth* column is thus formed. For stars in the list of the Nautical Almanac, there are applied, to the places given in the Nautical Almanac, corrections fundamentally deduced from the Right Ascensions given in the Greenwich Seven-year Catalogue of 2022 Stars for the epoch 1860 (see page xxxvii). For the Moon, the Tabular R.A. of Center is formed by interpolating with second differences between the hourly places of the Moon given in the Nautical Almanac, using as argument the Mean Solar Time of the *fourth* column.

The Hour Angle in the *sixth* column is the difference (without respect of sign, but taken less than 180°) between the Tabular R. A. and the Sidereal Time in the two preceding sections. The East or West side of the Meridian is indicated by the letter E or W in the *seventh* column.

The *eighth* column contains the Tabular Geocentric N.P.D. of Center. It is thus formed. For stars, the places in N.P.D. are derived from the same sources as those

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axes of the terrestrial ellipse, in the proportion of 300 to 299; x and y the co-ordinates parallel to them, their equation being $\frac{x^2}{a^2}+\frac{y^2}{b^2} = 1$; then the subnormal upon the minor axis $= -x\frac{dx}{dy} = \frac{a^2}{b^2}y$, and the part of this included between the origin of co-ordinates and the foot of the normal, is $\frac{a^2-b^2}{b^2}y$. To find y, we remark that the tangent of the astronomical latitude of Greenwich, or $\tan l, = -\frac{dx}{dy} = \frac{a^2}{b^2}\cdot\frac{y}{x} = \frac{a}{b}\cdot\frac{y}{\sqrt{(b^2-y^2)}}$; whence $y = \frac{b^2}{\sqrt{\{b^2+a^2\,\mathrm{cotan}^2\,l\}}}$; and the distance from the center of the spheroid to the foot of the normal, measured along the Earth's axis, is $\frac{a^2-b^2}{\sqrt{\{b^2+a^2\,\mathrm{cotan}^2\,l\}}}$; or, in parts of the semi-major axis, it is $\frac{a^2-b^2}{a\sqrt{\{b^2+a^2\,\mathrm{cotan}^2\,l\}}}$. The logarithm of this quantity is 7·7174788.

Now if, from the Earth's center, we draw a perpendicular to the Moon's radius vector, reaching the line drawn from the Moon to the foot of the normal, the length of that perpendicular will sensibly be, $a \times$ [7·7174788] $\times$ sin Moon's N.P.D.; the angle which it subtends as seen from the Moon will be $\frac{a}{\text{Moon's distance}} \times$ [7·7174788] $\times$ sin Moon's N.P.D. = [7·7174788] $\times$ sin Moon's hor. equat. parallax $\times$ sin Moon's N.P.D.; and the value of this in seconds of arc will be [3·0319039] $\times$ sin Moon's hor. eq. par. $\times$ sin Moon's N.P.D.; or [7·7174788] $\times$ seconds of Moon's hor. eq. par. $\times$ sin Moon's N.P.D. In this manner the number in the ninth column has been computed. It is always subtractive.

The assumed colatitude 38°. 31′. 22″·14 is the same as that formerly deduced from observations with the Mural Circle, corrected by the quantity + 0″·34 for the difference of latitude of the positions of the two instruments as found by measurement on the plan of the Observatory before mentioned.

With the Hour Angle unaltered, and the N.P.D. altered (for the Moon) by the correction just described, and with the colatitude 38°. 31′. 22″·14; the Tabular Azimuth in the *tenth* column of the left-hand page, and the Tabular Normal-centric Zenith Distance in the *fifth* column of the right-hand page, are computed by the following formulæ:—

Log tan α = log cos hour-angle + log tan Normal-centric N.P.D.

$\beta = \alpha -$ colatitude.

Log tan zenithal angle = log sin α + log tan hour-angle − log sin β.

Log cotan zen. dist. = log cotan β + log cos zenithal angle.

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As a check upon the accuracy of a large part of this computation, the terms of the following equation are computed numerically:—

Log sin zenithal angle + log sin zen. dist. = log sin hour-angle + log sin N.P.D.; and, if the numbers are not strictly equal, the computation is again examined.

The correction to Azimuth for Moon's Semidiameter, in the *first* column of the right-hand page, is thus computed. The semidiameter is interpolated with second differences from the Nautical Almanac, and then increased by 0″·49. (See Introduction to Greenwich Observations, 1863, pages lxxxvii and lxxxviii.) There is then applied the correction required for the difference between the distance of the Moon from the foot of the normal and her distance from the Earth's center. The former distance is greater than the latter by $a \times [7{\cdot}71748] \times \cos$ Moon's N.P.D., and therefore her angular semidiameter is diminished in the proportion of Moon's distance to Moon's distance $- a \times [7{\cdot}71748] \times \cos$ Moon's N.P.D., or $1 : 1 - \sin$ hor. eq. par. $\times [7{\cdot}71748] \times \cos$ Moon's N.P.D.: or, using the mean parallax 57′, the proportion is $1 : 1 - [5{\cdot}93708] \times \cos$ Moon's N.P.D. The correction required is taken out from a small table. The Correction to Azimuth is computed by the formula $-\frac{\text{Corrected semidiameter}}{\text{Sine Normal-centric Zenith Distance}}$; the term depending on the difference between the sine of semidiameter and the arc being insensible.

By application of this correction to the Tabular Azimuth in the last column of the left-hand page, the Tabular Azimuth of Limb in the *second* column of the right-hand page is formed. This Azimuth is necessarily the same at the place of observation as at the foot of the normal, for which the computation has been made.

The seconds of Observed Azimuth in the *third* column are transcribed from the section of Azimuths: and the apparent error of Tabular Azimuth in the *fourth* column is formed by subtracting the Observed Azimuth from the Tabular Azimuth in the last column of the left-hand page (for a star), or from that in the second column of the right-hand page (for the Moon).

The computation of the *fifth* column has already been mentioned.

The Normal-centric Semidiameter for the Zenith Distances in the *sixth* column is interpolated from the Nautical Almanac, increased by 1″·01 (see Introduction, 1863, as above), and corrected for reduction to the foot of the Normal. The last correction is $- 930'' \times [5{\cdot}93708] \times \cos$ Moon's N.P.D., and is readily tabulated.

For computation of the Parallax; in the first place, the horizontal equatoreal parallax is interpolated from the Nautical Almanac without alteration. It is then necessary to deduce from this the parallax referred to the foot of the Normal (the Moon's center having been referred to that point): and for this purpose, first, the Equatoreal Horizontal Parallax must be corrected so as to make the Horizontal Parallax depend on the Normal-centric radius, and must therefore be multiplied by $\frac{\text{Normal-centric Radius of Greenwich}}{\text{Earth's semi-major axis}}$. Using the

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the horizon. It is evident that, for the instrumental adjustments, the Collimator may be used as an immoveable star, and that, considered as the low star in the preceding investigation, its position is exceedingly favourable. The preceding formulæ apply with no other changes than the following: for d_r and d_l put 102°.18′, and for c_r and c_l put the same symbol c. It is by this use of the Collimator in combination with a high star that the error of collimation has been found throughout the year 1867.

The construction of the instrument gives us reason to believe that the error of collimation is probably less variable than any other instrumental constant; it is usual, however, to make a new determination of the value of this element at the end of every lunation, founded on the observations of that lunation.

Every set of four azimuths like those above will give a value of y; implying that, for that determination, the varying or slightly erroneous value of x, deduced from that individual combination, has been employed in the preliminary correction for collimation. But as, on account of the steadiness of collimation, it appears better to use a mean value of x throughout, a fresh investigation of y is afterwards made from every pair of observations. Thus, let O'_r, O'_l, be the concluded readings of horizontal circle corrected for the adopted error of collimation. Then the first equations are,

$$O'_r + L_r \cdot \text{cotan } D_r - C_r = + y \cdot \text{cotan } D_r + z + w \ ,$$
$$O'_l - L_l \cdot \text{cotan } D_l - C_l = - y \cdot \text{cotan } D_l + z + w \ .$$

$$\text{Whence } \frac{(O'_r + L_r \cdot \text{cotan } D_r - C_r) - (O'_l - L_l \cdot \text{cotan } D_l - C_l)}{\text{cotan } D_r + \text{cotan } D_l} = y.$$

Any one star, or the collimator, suffices for this determination; a high star, however, is best; and high stars have been exclusively used throughout the year.

The number y, it is to be observed, corresponds strictly with the horizontal position of the Horizontal Axis of the Vertical Circle, and has no relation whatever to the Level-Zero corresponding to a vertical position of the Vertical Axis of Azimuthal Rotation: except that, supposing the workmanship of the vertical pivots to be perfectly good, and the position of the horizontal axis in its Y's to be invariable, there ought to be a constant difference between them. The latter Level-Zero would be the mean of the level-indications in opposite positions of the instrument: and it would be found with sufficient accuracy for this purpose by taking the mean of the level-indications for positions used in successive observations of the same object (though the instrument was not exactly reversed). The following are the results of comparisons of these Level-Zeros since the erection of the Altazimuth. By inspection of these results, it will be seen that the relative difference between the two zeros had been steadily increasing, the pivot on the same side as the Graduated Face of the Vertical-Circle being too high. This difference may have arisen from a wear of one of the horizontal pivots, or in the bearing of a horizontal pivot, or in one of the vertical pivots. The inconvenience produced by large numerical corrections on account of this discordance became at length so great that an instrumental correction of the error was attempted in 1859, March, by filing away the surfaces of the Y of the pivot on the same side as the Graduated Face.

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EXCESS OF THE LEVEL INDICATION FOR HORIZONTAL POSITION OF THE AXIS OF THE VERTICAL CIRCLE ABOVE THE LEVEL INDICATION FOR VERTICAL POSITION OF THE AXIS OF REVOLUTION, SINCE THE ERECTION OF THE ALTAZIMUTH.

Year.	Mean Excess.	Year.	Mean Excess.
	"		"
1848	+ 1·13	1859 Jan. & Feb.	+ 13·75
1849	+ 2·33	1859 Mar. to Dec.	− 4·23
1850	+ 6·67	1860	− 4·91
1851	+ 8·75	1861	− 5·48
1852	+ 10·50	1862	− 6·24
1853	+ 11·36	1863	− 5·39
1854	+ 11·71	1864	− 5·01
1855	+ 12·51	1865	− 4·56
1856	+ 13·23	1866	− 5·07
1857	+ 13·59	1867	− 4·30
1858	+ 13·70		

The comparison of the Observed Circle-Reading for a star, corrected for Collimation and Level, with the computed Azimuth for the same star, gives the Zero of Azimuth. Since the time of the establishment of the instrument, this Zero has been subject to greater and more sudden variations than any other element of reduction; and great pains have been taken to discover the source of the instability. In the Introduction to the volume for 1850 will be found an investigation, based on the Theory of Probabilities, for determining the relative stability of the Azimuthal Circle and of the Collimator, and the Error due to the transmission of time from the Transit-Instrument, on the assumption that there is no movement of the ground which carries both the Circle and the Collimator. From this investigation it seemed to be established that the Azimuthal Circle was the most stable part of the instrument, that the fluctuations of the position of the Collimators were somewhat greater, but that the principal source of errors was in the comparison of the circle-reading with the azimuth computed from the time-observation; and, in consequence, it became the practice to rely solely on the stability of the Azimuthal Circle, and, for a limited period, to use the same Zero of Azimuth, determined from the mean of all the separate determinations from star-observations on every day during that period, without special reference to the star-observations of the day of observation. In later years, however, the propriety of this proceeding has become questionable from two considerations; the first of which is that, since the introduction of the galvanic registration of transits, in which one source of error arising from the comparison of clocks is completely removed, the stability of the Zero of Azimuth does not seem at all to have improved; and the second, that there is now great reason to doubt the immobility of the ground carrying the Collimator and the Circle. From an investigation of the changes of azimuth of the Transit-Circle, it seems certain that the ground carrying that instrument is subject to frequent and sudden shifts, and a somewhat similar investigation made for the Altazimuth seems to prove instability of the ground on which it stands. In both instances, the changes appear to be connected with sudden changes of atmospheric temperature. Under these circumstances it has been thought best during the year 1867 to use, for each day's obser-

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Greenwich Observations, to employ the same method of reduction for all the stars found in those volumes.

§ 12. *Horizontal and Vertical Diameters, Right Ascensions, and North Polar Distances, of the Sun, Moon, and Planets; deduced from the Observations, and compared with the Nautical Almanac and other Ephemerides: with the inferred position of the Ecliptic, the Geocentric Errors of the Sun, Moon, and Planets, in Longitude and Ecliptic Polar Distance, and the Equations between the Geocentric Errors of the Planets and the Heliocentric Errors of the Earth and Planets*, page 31 to 63.

The duration of the passage of the Sun's diameter is found by subtracting the clock-time of transit of the first limb from that of the second limb in the *Transits observed*, &c., without any further correction. The tabular duration is found by doubling the time of the passage of the semidiameter given in the Nautical Almanac. The excess of the latter above the former is set down as the apparent error of the Nautical Almanac. The mean of 73 measures of the value of this error is $+0^{s}\cdot11$, agreeing nearly with the results of the ten preceding years.

The Sun's vertical diameter is found by subtracting the zenith distance of the north limb, corrected for refraction and parallax, from that of the south limb similarly corrected. The tabular diameter is found by doubling the semidiameter of the Nautical Almanac. The excess of the latter above the former is set down as the error of the Nautical Almanac, and the mean of 83 measures of the value of this error is $+1''\cdot39$.

For the duration of the passage of the Moon's diameter, a correction is applied (negative to the time of passage of the first limb, or positive to that of the second limb, accordingly as the Moon had passed or had not passed the opposition in right ascension), thus investigated:—The excess or defect of the difference of R.A. of the Sun and Moon from 12^{h}, at the time of the Moon's transit, being found, and expressed in arc, this quantity is multiplied by the cosine of the Sun's declination, and thus an arc θ is obtained which represents the angle, upon the Moon's surface, of the unenlightened part of the disk (with respect to right ascension); the correction required is, duration of passage of semidiameter $\times$ versed sine θ.

The mean of the three errors of the Moon's tabular duration of passage in 1867 is $+0^{s}\cdot17$.

The Moon's vertical diameter is found in the same manner as that of the Sun (the correction for defective illumination having been already applied, see page lxiv). The mean of 2 determinations made in 1867 is $-0''\cdot09$.

From a comparison of the observed vertical diameters with the tabular diameters of the Moon, made from the erection of the Great Transit-Circle, to the end of 1863 (see 1863, Introduction, page lxxxvii) it appears that Hansen's semidiameter requires to be increased by $+0''\cdot18$, in order to represent the observations of diameter made with the Transit-Circle.

From a similar comparison of the observations made with the Altazimuth, from

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1848 to 1863, (Introduction, 1863, pages lxxxvii and lxxxviii), it appears that the required corrections to the Nautical Almanac semidiameters (Hansen's) are,—

+ 0″·49 for azimuthal observations.
+ 1″·01 for zenithal observations.

For the planets, the duration of passage of diameter is found by subtracting the clock-time of transit of the first limb from that of the second limb in the *Transits observed:* no correction for defect of illumination having been necessary, except for Mars, for which the amount of correction is stated in the notes.

The vertical diameters of Mercury, Venus and Mars are found by subtracting the N.P.D. of the north limb from that of the south limb, after the correction for defective illumination has been applied, as explained at page lxv. The vertical diameters of the other planets are obtained in a similar way, excepting that there is no correction for defective illumination.

The Mean Solar Time is found, in all cases, from the Right Ascension or Sidereal Time, by adding together the Mean Solar Time at the transit of the first point of Aries next preceding, and the equivalents in Mean Solar Time for the hours, minutes, and seconds of Sidereal Time: the whole of these numbers being taken from the Nautical Almanac. In practice, this operation is made a little easier by putting the addition in the following form:—

1. Sidereal Time.
2. Mean Solar Time of preceding Transit of first point of Aries diminished by 4^m.
3. $3^m.47^s.00$ — hours of Sid. Time + solar equiv. for hours.
4. $10^s.00$ — minutes of Sid. Time + solar equiv. for minutes.
5. $3^s.00$ — seconds of Sid. Time + solar equiv. for seconds.

Small tables of the 3rd, 4th, and 5th quantities are prepared (see Appendix to Observations, 1837, Table No. IV.), and the operation is then very simple, consisting entirely of addition, with few figures, and no interpolation.

In the year 1867 there are very few instances in which only one element of the Sun or a planet has been observed. In any case where the North Polar Distance has been observed without the corresponding Right Ascension, the Right Ascension at Transit (for the calculation of the Mean Solar Time) is taken from the Nautical Almanac for the Sun and for Planets included in that work; and from other Ephemerides, for Planets not included in the Nautical Almanac; but in all cases as near an approximation as possible is made to the correct Right Ascension, by the application of corrections derived from neighbouring observations.

The Right Ascensions of the Sun's center are generally the means of those deduced from the observations of the two limbs; but, when one limb only has been observed, the R.A. of the center is deduced from that of the limb, by application of the duration of transit of semidiameter given in the Nautical Almanac, corrected by $-0^s.04$. The Right Ascensions are transcribed from those in the *Transits observed* without alteration, except that, when necessary, the personal equation is applied, as mentioned in a former part of this Introduction (page xlviii).

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observed, and *Observations of Zenith Distance:* but in the column of *Mean Day*, the day is given whose noon is nearest to the time of observation, or to the mean of times of observation.

The errors of Tabular Longitude and Ecliptic Polar Distance of the Moon are deduced from the Errors of Tabular Right Ascension and North Polar Distance by the use of the numbers, P, Q, R, S, for all the meridian observations as well as for the observations made with the Altazimuth. For the Altazimuth, the Errors of Tabular R.A. and N.P.D. are extracted from the last section of computations of the observations made with that instrument.

§ 13. *Observations of γ Draconis, with the Reflex Zenith-Tube;* page 65 to 69.

The details of the general construction of this instrument are given in Appendix I. to the Greenwich Observations for 1854, and the means taken to prevent the communication of tremor to the mercury are described at page xxi of the present Introduction. For the understanding of the tabular arrangement containing the successive steps of the reduction of the observations, the following explanation will suffice.

The micrometer was originally furnished with thirty wires, and, by bringing each of these successively on the acute wire-cross of an adjustment-eyepiece which was rendered capable of being brought opposite to different wires in succession, the values of the intervals of the wires were very accurately determined, in terms of revolutions both of micrometer A and micrometer B. These intervals were afterwards measured by observing the time of transit of γ Draconis over each of the wires; and eight series of observations, nearly complete, were obtained between 1851, July 18 and August 15. By comparing then the number of revolutions of each micrometer corresponding to the interval between each pair of consecutive wires, with the time occupied by γ Draconis in passing from one wire to the other, the value of one revolution of each is obtained in terms of time; and this is readily reduced to arc by multiplying by 15 × the sine of star's N.P.D. To ensure, however, the utmost accuracy, the hour-angle of each of the extreme observed wires on the two sides of wire "15" was found by successive addition of observed intervals (in time) of all the intermediate wires, assuming wire "15" to represent the meridian with sufficient accuracy; and the angular distance of wire "15" from each of the extreme wires was computed from these hour-angles. The intervals, in terms of the micrometer, of all the intermediate wires, were also added together, so as to exhibit the micrometrical distance of wire "15" from each extreme wire. By this means it was found that, on one side of the wire, 156·017 revolutions of Micrometer B corresponded to an arc of 43′. 38″·48; and on the other side, 181·936 revolutions corresponded to an arc of 50′. 51″·71.

Hence, in the first case, the value of a revolution was

$$\frac{\text{sin. } 43'.38''\cdot48}{156\cdot017 \times \text{sin } 1''} = 16''\cdot784$$

and in the other case the value was

$$\frac{\text{sin. } 50'.51''\cdot71}{181\cdot936 \times \text{sin } 1''} = 16''\cdot775.$$

The mean of these, or 16″·78, has been used.

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By obtaining the values of the intervals of several of the wires in terms of revolutions of micrometer A in a manner analogous to that explained above, and comparing them with the intervals obtained in terms of revolutions of micrometer B, it was found that 142·957 revolutions of B were equal to 142·986 revolutions of A. Hence the screws of A and B are assumed to have equal values, and one revolution of each is equal to 16″·78, as stated in the foot-notes to the Observations.

The wires used for the bisection of the Star are usually those numbered "15" and "16," and the interval in arc between these wires, as determined in 1861, is 3′. 38″·00. This value has been used without alteration throughout the year 1867. For a few observations made on other wires, the intervals are given in the notes.

The correction due to the readings of the level-scale is determined from the following considerations:—When micrometer A is to the left—that is, south of the zenith—the micrometer readings increase as the wire moves to the left—that is, as the north zenith distance of the star increases; and, in this position, the readings of the level-scale increase from left to right, and therefore the level-indications will increase when the right or northern edge of the object-glass is raised.

Supposing this northern edge to be raised, the central ray of light for a zenithal star, descending through the focal center and reflected up through the focal center, meets the wire-frame (which is above the focal center) not at its zenithal point, but at a point which is north or to the right of the zenithal point.

Therefore the wire, when in that position it is laid upon the star, is more to the north or right than it ought to be; and therefore its micrometer-reading is smaller than it ought to be, and a positive correction is required: that is, for increasing readings of the level-scale the correction is positive.

The linear amount of the correction (omitting a constant depending on the zero of the level-scale) is {dist. from focal center to wire-frame} × {½ sum of readings of level-scale} × {value of one division of level-scale}.

The angular amount of the correction is this quantity divided by the focal length of the object-glass.

From statements made by Mr. Simms, it is assumed that the focal center coincides sensibly with the upper surface of the object-glass, and therefore that the distance of plane of wires from focal center = $0^{in.}25$; and that the value of one division of the level-scale is 6″ nearly. Also, the focal length of the object-glass, which is that of Troughton's transit instrument dismounted in the year 1851, is 116 inches.

With these data, the correction to zenith distance due to the readings of the level-scale is found to be 0″·00646 × sum of readings of the level-scale.

From these numbers, the numerical value of the sums of equivalents for micrometer-readings and for level-readings is computed by the formula given in the foot-notes to the Observations; and thus is obtained the zenithal distance of the star, as measured towards micrometer B, increased by an instrumental constant, which it is necessary to determine from the observations. This constant is usually determined by forming for each day the half-sum of the two sums of equivalents in the two reversed positions of the instrument, and by taking the arithmetical mean of those half-sums deter-

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The coefficients of small variations of the North Polar Distance and of the Difference of Right Ascension (in the expression for distance), are computed by the formulæ :—

log. 1st number = 2 log. diff. R. A. + log. sine (sum of N. P. D.) — log. dist. + 4·0835.

log. 2nd number = log. diff. N. P. D. — log. distance.

Coefficient of variation of greater N. P. D. = 1st number + 2nd number.

Coefficient of variation of smaller N. P. D. = 1st number − 2nd number.

Log. coefficient of variation of diff. R. A. =

log. diff. R. A + log. sin δ' + log. sin Moon's N. P. D. − log. distance.

The variation of the R. A. of the corresponding point contains the following terms :—

1st. The alteration of the R. A. of the star by the quantity e'' will alter the R. A. of the corresponding point by very nearly the same quantity e''.

2nd. The alteration of the horizontal equatoreal parallax in the proportion of $1 : 1 + \frac{m}{1000}$ will alter all the deduced parallaxes (in R. A. and in N. P. D.) in nearly the same proportion: and therefore the R.A. of the corresponding point will be altered by $\frac{m}{1000} \times$ correction for parallax in R. A.

3rd. The alteration in the position of the Moon with regard to the meridian, depending on the alteration of time t^s, will introduce an alteration in the correction for parallax. It is computed by the following formula :—

Alteration in correction of R. A. of corresponding point for parallax, depending on the alteration of time =

$$15'' \times t \times \left\{ \begin{array}{l} \sin P \,.\, \cos l \,.\, \mathrm{cosec\ N.P.D.} \cos \text{hour-angle} \\ + \sin^2 P \,.\, \cos^2 l \,.\, \mathrm{cosec^2\ N.P.D.} \cos 2 \text{ hour-angle.} \end{array} \right\}$$

The variation of the R. A. of the Moon's center is $x'' + t \times$ change of R. A. in 1^s.

The variation of the N. P. D. of the corresponding point contains three terms analogous to those for R. A. : namely—

1st. The alteration of the star's N. P. D. by the quantity f'' will alter the N. P. D. of the corresponding point by f'' nearly.

2nd. The correction for parallax in N. P. D. will be altered by $\frac{m}{1000} \times$ correction for parallax in N. P. D.

3rd. The increase of hour-angle (considered positive when the Moon is west of the meridian), depending on the alteration of time t^s, will alter the correction for parallax in N. P. D. by the following quantity :—

$$15'' \times t \times \left\{ \begin{array}{l} (-\sin P \,.\, \cos l \,.\, \cos \text{N.P.D.} - \sin^2 P \,.\, \sin l \,.\, \cos l \,.\, \cos 2 \text{ N.P.D.}) \times \sin \text{ hour-angle.} \\ (-\frac{3}{2} \sin^2 P \,.\, \cos^2 l \,.\, \cot \text{N.P.D.} + \sin^2 P \,.\, \cos^2 l \,.\, \cot \text{N.P.D.} \cos^2 \text{N.P.D.}) \times \sin 2 \text{ hour-angle.} \end{array} \right.$$

The variation of the N. P. D. of the Moon's center is $y'' + t \times$ change of N.P.D. in 1^s.

The computed distance, with addition of the sum of the products of the preceding variations by their proper coefficients, is made equal to the semidiameter increased by the term, semidiameter $\times \frac{n}{1000}$; and thus the final equation is formed.

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The following table contains the values of log. $\left(\frac{\text{arc}}{\text{sin}}\right)$, log. $\left(\frac{\text{sin}}{\text{arc}}\right)$, and log. $\left(\frac{\text{tan.}}{\text{arc}}\right)$ to the extent to which they are needed for these computations.

	Log. $\left(\frac{\text{Arc.}}{\text{Sin.}}\right)$	Log. $\left(\frac{\text{Sin.}}{\text{Arc.}}\right)$		Log. $\left(\frac{\text{Arc.}}{\text{Sin.}}\right)$	Log. $\left(\frac{\text{Sin.}}{\text{Arc.}}\right)$
′			′		
1	0 ·0000000	0 ·0000000	31	0 ·0000058	9 ·9999942
2	0 ·0000000	0 ·0000000	32	0 ·0000062	9 ·9999938
3	0 ·0000000	0 ·0000000	33	0 ·0000066	9 ·9999934
4	0 ·0000000	9 ·9999999	34	0 ·0000070	9 ·9999930
5	0 ·0000001	9 ·9999999	35	0 ·0000074	9 ·9999926
6	0 ·0000002	9 ·9999998	36	0 ·0000078	9 ·9999922
7	0 ·0000003	9 ·9999997	37	0 ·0000083	9 ·9999917
8	0 ·0000004	9 ·9999996	38	0 ·0000088	9 ·9999912
9	0 ·0000005	9 ·9999995	39	0 ·0000093	9 ·9999907
10	0 ·0000006	9 ·9999994	40	0 ·0000098	9 ·9999902
11	0 ·0000007	9 ·9999993	41	0 ·0000103	9 ·9999897
12	0 ·0000008	9 ·9999992	42	0 ·0000108	9 ·9999892
13	0 ·0000010	9 ·9999990	43	0 ·0000113	9 ·9999887
14	0 ·0000012	9 ·9999988	44	0 ·0000118	9 ·9999882
15	0 ·0000014	9 ·9999986	45	0 ·0000124	9 ·9999876
16	0 ·0000016	9 ·9999984	46	0 ·0000129	9 ·9999871
17	0 ·0000018	9 ·9999982	47	0 ·0000135	9 ·9999865
18	0 ·0000020	9 ·9999980	48	0 ·0000141	9 ·9999859
19	0 ·0000022	9 ·9999978	49	0 ·0000147	9 ·9999853
20	0 ·0000024	9 ·9999976	50	0 ·0000153	9 ·9999847
21	0 ·0000026	9 ·9999974	51	0 ·0000159	9 ·9999841
22	0 ·0000029	9 ·9999971	52	0 ·0000165	9 ·9999835
23	0 ·0000032	9 ·9999968	53	0 ·0000171	9 ·9999829
24	0 ·0000035	9 ·9999965	54	0 ·0000178	9 ·9999822
25	0 ·0000038	9 ·9999962	55	0 ·0000185	9 ·9999815
26	0 ·0000041	9 ·9999959	56	0 ·0000192	9 ·9999808
27	0 ·0000044	9 ·9999956	57	0 ·0000199	9 ·9999801
28	0 ·0000047	9 ·9999953	58	0 ·0000206	9 ·9999794
29	0 ·0000051	9 ·9999949	59	0 ·0000213	9 ·9999787
30	0 ·0000055	9 ·9999945	60	0 ·0000221	9 ·9999779

	Log. $\left(\frac{\text{Tan.}}{\text{Arc.}}\right)$		Log. $\left(\frac{\text{Tan.}}{\text{Arc.}}\right)$
′		′	
2	0 ·0000000	14	0 ·0000024
3	0 ·0000001	15	0 ·0000027
4	0 ·0000002	16	0 ·0000031
5	0 ·0000003	17	0 ·0000035
6	0 ·0000004	18	0 ·0000039
7	0 ·0000006	19	0 ·0000044
8	0 ·0000008	20	0 ·0000049
9	0 ·0000010	21	0 ·0000054
10	0 ·0000012	22	0 ·0000059
11	0 ·0000015	23	0 ·0000065
12	0 ·0000018	24	0 ·0000071
13	0 ·0000021	25	0 ·0000077

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As a general remark, applying to every class of observation above mentioned, it is proper to state that the original entries of observations are in all cases preserved. The greater part of the regular observations with the Transit-Circle are entered in small memorandum books, in which the entries are made with a metallic pencil whose marks are not easily effaced; those with the Altazimuth are entered in printed skeleton forms arranged for the purpose: and some observations are written down at once with ink in the skeleton forms in which the calculations are to be made, or in the copy which is sent to the press. All, however, are preserved. The sheets punctured by the prickers of the galvanic magnets in registration of transits by the Chronographic method are also preserved. The proof sheets are read with the first skeleton forms in which the observations are entered; and in which, in fact, the examination for accidental errors, &c., is made.

G. B. AIRY.

Royal Observatory, Greenwich,
1869, *February* 22.

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ROYAL OBSERVATORY, GREENWICH.

TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE

AND

COMPUTATIONS

OF

APPARENT RIGHT ASCENSION.

1867.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Jan. 13	1	η Piscium.....	E	32·5	35·5	38·4	41·2	46·9	52·7	55·6	58·4	1·3	1. 23. 46·91	+0·65	47·51	22·41	34·90	35·04	....	
	2	☽ 1 L.....	E	15·0	17·9	20·7	23·6	29·3	35·1	37·8	40·7	43·6	1. 30. 29·27	(+12·41)	29·75			[−1·64]	1. 32. 11·46	
	3	α Piscium.....	E	21·2	24·1	26·9	29·6	34·9	40·6	43·4	46·2	48·9	1. 54. 35·06	[−3·36]	35·48				1. 55. 10·39	− 0·20
	4	ξ^1 Ceti	E	8·3	11·2	14·0	16·8	22·4	28·0	30·7	33·4	36·2	2. 5. 22·31		22·82				2. 5. 57·72	− 0·32
Jan. 14	5	α Andromedæ ...	JC	41·3	44·5	47·6	50·6	57·0	3·4	6·6	9·7	12·8	0. 0. 57·02	+0·21	57·73	30·92	33·19	33·20†	....	
	6	γ Pegasi.....	JC	35·2	38·2	41·0	43·8	49·4	55·3	58·2	0·9	3·8	0. 5. 49·50	(+12·25)	49·94	23·14	33·20	[−1·76]	....	
	7	Polaris ...(E & E)	C	..	..	..	..	..	..	..	4·5	57·5	1. 9. 28·53	[−5·94]	5·45	38·49	33·04	33·19	....	
	8	β Arietis	C	30·0	33·0	35·8	38·8	44·7	50·6	53·7	56·5	59·3	1. 46. 44·68		45·22	18·22	33·00		....	
	9	α Piscium.....	C	23·0	26·0	28·8	31·5	36·9	42·5	45·4	48·1	50·7	1. 54. 36·96		37·20				1. 55. 10·25	− 0·28
	10	κ Arietis.....	C	19·8	22·7	25·7	28·9	34·7	40·9	43·9	46·8	49·6	1. 58. 34·75		35·34				1. 59. 8·38	− 0·53
	11	ξ^1 Ceti	C	10·2	13·2	15·8	18·7	24·3	29·8	32·6	35·4	38·2	2. 5. 24·22		24·57				2. 5. 57·61	− 0·41
	12	Bradley 325.....	C	12·8	16·6	20·6	24·8	32·8	41·0	45·0	48·9	52·9	2. 11. 32·78		33·95				2. 12. 6·98	− 1·07
	13	11 Trianguli	C	46·4	49·6	52·9	56·2	2·6	9·1	12·3	15·6	18·8	2. 19. 2·58		3·35				2. 19. 36·37	− 0·79
	14	☽ 1 L.	C	27·4	30·4	33·0	36·1	42·0	47·8	50·5	53·4	56·4	2. 26. 41·86		42·24				2. 28. 23·70	
	15	γ^2 Ceti	C	38·0	40·9	43·7	46·4	51·9	57·4	0·2	3·0	5·8	2. 35. 51·89		52·15	25·17	33·02		....	
	16	μ Ceti.....	C	58·6	1·4	4·1	7·0	12·4	18·3	21·0	23·9	26·6	2. 37. 12·56		12·93				2. 37. 45·93	− 0·60
	17	δ Arietis	C	14·2	17·2	20·2	23·0	29·2	34·9	37·8	40·8	43·6	3. 3. 28·95		29·47	2·49	33·02		....	
	18	l Persei	C	41·2	45·1	48·7	52·4	0·0	7·6	11·2	15·1	18·9	3. 11. 59·99		1·04				3. 12. 34·00	− 1·34
Jan. 15	19	⊙ 1 L.....	D	35·7	38·7	41·7	44·6	50·5	56·5	59·4	2·5	5·4	19. 45. 50·53		} 0·45			33·49 [−2·07]	19. 47. 32·24	
	20	⊙ 2 L.....	D	55·9	58·6	1·6	4·6	10·8	16·4	19·6	22·6	25·4	19. 48. 10·59							
	21	α Arietis	E	..	..	0·6	3·6	9·4	15·5	18·5	21·5	24·4	1. 59. 9·47		10·07	41·35	31·28	31·45†	....	
	22	τ^1 Arietis.....	D	47·6	50·5	53·5	56·5	2·4	8·4	11·3	14·2	17·1	3. 13. 2·36		2·92	34·02	31·10	31·42	3. 13. 34·07	− 0·90
	23	ο Tauri.....	D	54·9	57·7	0·5	3·2	8·8	..	..	20·0	..	3. 17. 8·81		9·16	40·31	31·15		3. 17. 40·30	− 0·78
	24	☽ 1 L.	D	35·5	38·9	41·7	44·4	50·2	56·2	59·0	2·1	5·0	3. 25. 50·31		50·74				3. 27. 32·14	
	25	γ Tauri	D	28·7	31·5	34·7	37·4	43·3	48·9	51·8	54·7	57·5	4. 11. 43·14		43·60	14·74	31·14		4. 12. 14·66	− 1·10
	26	ϵ Tauri.....	D	6·2	9·2	12·1	15·0	20·9	26·8	29·6	32·4	35·4	4. 20. 20·82		21·35	52·32	30·97		4. 20. 52·40	− 1·17
	27	Aldebaran	D	32·8	35·7	38·6	41·3	47·2	53·0	55·8	58·6	1·4	4. 27. 47·12		47·60	18·63	31·03		4. 28. 18·63	− 1·16
Jan. 16	28	η Tauri.....	JC	51·5	54·6	57·6	0·6	6·7	12·6	15·7	18·7	21·7	3. 39. 6·60	(+11·36) [−5·51]	7·17	35·99	28·82		....	
Jan. 17	29	ν Piscium	L	50·0	52·9	55·7	58·5	4·0	9·5	12·3	15·0	17·9	1. 34. 3·95		4·22	30·81	26·59	26·75†	....	
	30	β Arietis	L	36·4	39·4	42·2	45·2	51·0	57·0	0·0	2·9	5·8	1. 46. 51·07		51·58	18·18	26·60	[−2·23]	....	
	31	τ^1 Arietis.....	E	51·7	54·9	57·7	0·7	6·6	12·6	15·4	18·4	21·4	3. 13. 6·57		7·11	33·99	26·88		....	
	32	ο Tauri.....	E	..	2·0	4·6	7·4	13·1	18·7	21·4	24·4	..	3. 17. 13·05		13·38	40·29	26·91		....	
	33	Gr.2283S.P.(E&E)	E	..	..	..	..	49·5	8·0	..	..	37·5	3. 20. 47·79		26·54	53·46	26·92		....	
Jan. 18	34	η Geminorum....	C	..	..	..	22·0	28·0	33·9	37·0	40·0	42·9	6. 6. 27·95	[−7·07]	28·45	52·48	24·03	24·65	....	
	35	μ Geminorum ...	C	16·8	19·7	22·9	25·7	31·8	37·7	40·7	43·8	46·7	6. 14. 31·73		32·23	56·34	24·11	[−2·17]	....	
	36	β Canis Majoris..	JC	13·5	16·4	19·4	22·2	28·1	33·9	36·8	39·7	42·5	6. 16. 28·02		27·86	52·10	24·24	24·72†	....	
	37	14 Geminorum ..	C	5·9	8·9	11·9	14·9	20·7	26·7	29·8	32·8	35·6	6. 17. 20·77		21·26			24·65	6. 17. 45·34	− 1·50
	38	Uranus.....	C	6·7	9·8	12·9	15·9	21·8	28·0	31·0	33·8	36·8	6. 23. 21·83		22·35				6. 23. 46·42	
	39	ξ^1 Canis Majoris .	C	41·4	44·6	47·5	50·6	56·6	2·7	5·7	8·6	11·6	6. 25. 56·56		56·30				6. 26. 20·37	− 1·53
	40	γ Geminorum ...	JC	24·3	27·2	30·0	33·0	38·6	44·5	47·5	50·3	53·1	6. 29. 38·69		39·08	3·13	24·05	24·72†	....	
	41	Cephei 51 .(E&E)	C	8·0	7·0	4·5	2·0	..	..	..	..	..	6. 36. 55·82		14·61	38·64	24·03	24·65	....	
	42	☽ 1 L.	C	52·9	55·9	59·0	2·0	8·0	14·0	16·9	20·0	23·1	6. 38. 7·94		8·34				6. 39. 45·34	
	43	θ Canis Majoris ..	C	24·1	26·8	29·6	32·5	38·0	43·8	46·5	49·3	52·2	6. 47. 38·06		37·99	2·13	24·14		....	
	44	ζ Geminorum ...	C	35·4	38·5	41·4	44·2	50·1	56·2	59·0	2·1	5·0	6. 55. 50·19		50·66				6. 56. 14·69	− 1·51

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·200.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
Corrections for passage of Semidiameter, Nos. 2, 14, 24, and 42, +66s·75: +68s·43: +70s·26: and +72s·93.
January 14 and 15. The azimuthal error used is that determined on January 14 by tabular places of Polaris and β Arietis, allowing −0s·05 for clock-rate.
January 17. The azimuthal error by tabular places of ο Tauri and Groombridge 2283 S.P.
January 18 to 20. The azimuthal error used is that determined on January 18 by tabular places of γ Geminorum and Cephei 51, allowing −0s·01 for clock-rate.

2, 14, 24, 42. Correction to R.A. on true Meridian, +0s·02.
22. Very faint; scarcely visible at some of the wires.
10. Very faint; extremely foggy.
23, 24, 26. Very cloudy.
19, 20. Very tremulous.
25, 28. Very faint.

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MONTH and DAY.	No. for References.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s			s	h m s	s
Jan. 18	1	47 Geminorum ..	C	29·5	32·6	35·7	39·0	45·0	51·3	54·3	57·4	0·5	7. 2. 45·00	+ 0·21	45·59			24·65	7. 3. 9·60	— 1·49
	2	δ Geminorum....	C	32·8	36·0	38·7	41·9	47·8	54·0	56·7	59·6	2·7	7. 12. 47·77	(+ 11·36)	48·27	12·22	23·95	[− 2·17]	....	
	3	Mars 1 L.....	C	10·3	13·4	16·4	19·4	25·8	31·9	34·9	38·1	41·1	7. 16. 25·67	[−7·07]	} 26·92					
	4	Mars 2 L.....	C	11·6	14·7	18·0	21·0	27·0	33·2	36·2	39·3	42·4	7. 16. 27·01						7. 16. 50·92	
Jan. 19	5	ο Tauri.....	E	3·6	6·3	9·0	11·8	17·4	23·1	25·9	28·6	31·5	3. 17. 17·43		17·69	40·26	22·57	22·85†	....	
	6	f Tauri.....	E	55·8	58·7	1·5	4·4	10·0	15·5	18·4	21·3	24·1	3. 23. 9·94		10·26	32·81	22·55	[− 2·10]	....	
	7	o1 Eridani.....	W	47·0	50·0	52·6	55·4	0·9	6·4	9·4	12·2	15·0	4. 5. 0·96		0·97	23·26	22·29	22·65	....	
	8	56 Tauri	W	7·9	11·0	13·9	16·8	22·6	28·5	31·6	34·5	37·5	4. 11. 22·67		23·15				4. 11. 45·44	— 1·13
	9	70 Tauri	W	..	..	..	..	40·1	46·0	49·0	51·7	54·6	4. 17. 40·21		40·59				4. 18. 2·87	— 1·09
	10	Castor	D	29·3	32·6	35·9	39·1	45·5	52·2	55·2	58·6	2·0	7. 25. 45·57		46·18	8·24	22·06	22·67	....	
	11	υ Geminorum....	D	..	..	..	16·4	22·5	28·8	31·9	35·0	38·0	7. 27. 22·52		23·11				7. 27. 45·13	— 1·57
	12	Procyon	D	..	..	..	..	59·7	5·2	8·0	10·8	13·4	7. 31. 59·61		59·82	21·83	22·01		....	
	13	Pollux	D	33·9	37·0	40·1	43·2	49·4	55·7	59·0	2·0	5·1	7. 36. 49·45		50·06	12·01	21·95		....	
	14	☽ 1 L.	D	46·9	50·1	53·0	56·0	1·9	7·9	10·8	13·9	16·7	7. 43. 1·88		2·26				7. 44. 36·27	
Jan. 20	15	Rigel	C	..	..	..	..	..	..	..	1·3	3·9	5. 7. 49·99		49·98	9·93	19·95	20·40†	....	
	16	β Tauri	C	..	..	..	..	34·0	40·4	43·5	46·7	49·8	5. 17. 34·04		34·65	54·64	19·99	[− 2·01]	....	
Jan. 23	17	15 Argûs	E	25·2	28·2	31·1	34·1	40·5	46·5	49·5	52·4	55·6	8. 1. 40·32	+ 0·97	40·24	54·58	14·34	14·69†	....	
	18	β Cancri.....	E	51·0	53·8	56·5	59·2	5·0	10·6	13·5	16·4	19·2	8. 9. 4·99	(+7·51)	5·26	19·57	14·31	[− 1·08]	....	
														[−4·06]						
Jan. 24	19	β Andromedæ ...	P	46·2	49·7	53·1	56·4	3·1	10·1	13·2	16·7	20·1	1. 2. 3·15		3·73	17·74	14·01		....	
	20	Polaris.... (E&E)	P	..	..	11·0	3·0	..	39·0	..	..	..	1. 9. 49·85		15·53	29·52	13·99		....	
	21	η Piscium.....	P	53·7	..	59·2	2·2	7·9	14·0	16·5	..	22·2	1. 24. 7·94		8·26	22·25	13·99		....	
Jan. 25	22	ε Andromedæ....	HC	3·0	6·1	9·2	12·4	18·6	25·0	28·1	31·2	34·4	0. 31. 18·63	(+ 8·31)	19·17	31·86	12·69	12·71	0. 31. 31·84	+ 0·09
	23	α Cassiopeiæ	HC	..	..	30·1	35·0	44·9	54·7	59·8	..	..	0. 32. 44·85	[−3·91]	46·01			[− 1·95]	0. 32. 58·68	— 0·16
	24	η Cassiopeiæ	HC	..	29·4	35·3	40·4	50·6	0·8	6·0	..	..	0. 40. 50·41		51·61				0. 41. 4·27	— 0·25
	25	78 Piscium.....	HC	10·9	14·1	17·4	20·6	27·0	33·6	36·9	40·0	43·2	1. 0. 27·03		27·63				1. 0. 40·26	— 0·11
	26	Polaris ....(E&E)	HC	..	..	..	5·0	50·0	39·0	32·0	26·5	18·5	1. 9. 50·08		17·25	28·64	11·39		....	
	27	η Piscium.....	HC	55·0	58·0	0·8	3·7	9·2	15·0	18·0	20·8	23·6	1. 24. 9·31		9·68	22·24	12·56		1. 24. 22·28	— 0·08
	28	63 Andromedæ ..	HC	36·8	41·0	45·4	49·7	58·1	6·6	10·9	15·2	19·5	2. 11. 58·08		59·03				2. 12. 11·56	— 0·88
	29	66 Andromedæ ..	HC	..	..	31·8	36·2	44·7	53·4	57·8	..	..	2. 18. 44·73		45·69				2. 18. 58·21	— 0·94
	30	15 Trianguli.....	HC	13·8	17·2	20·6	23·7	30·5	..	..	..	..	2. 27. 30·48		31·12				2. 27. 43·63	— 0·69
	31	Piazzi II. 117 ...	HC	..	..	..	..	34·0	40·6	44·1	47·4	50·7	2. 27. 33·97		34·61				2. 27. 47·12	— 0·69
	32	47 Cephei	HC	..	..	..	..	20·6	49·4	3·6	18·3	32·1	2. 48. 20·49		24·08				2. 48. 36·56	— 3·96
	33	δ Arietis.....	HC	34·8	37·9	40·6	43·7	49·4	55·4	58·3	1·1	4·1	3. 3. 49·44		49·86	2·34	12·48		3. 4. 2·32	— 0·69
	34	τ1 Arietis.....	HC	6·1	9·2	12·1	15·1	21·0	27·0	29·9	32·7	35·9	3. 13. 20·97		21·42	33·88	12·46		3. 13. 33·87	— 0·76
	35	36 Persei	HC	..	..	50·0	54·1	2·0	10·1	14·0	..	..	3. 23. 2·00		2·85				3. 23. 15·29	— 1·26
	36	Piazzi III. 94 ...	HC	..	..	8·4	14·4	26·4	38·6	44·6	..	..	3. 30. 26·41		27·86				3. 30. 40·29	— 1·64
	37	ε Persei	HC	..	..	..	..	..	53·6	56·9	0·2	3·2	3. 35. 47·03		47·63				3. 36. 0·05	— 1·04
	38	ν Persei.....	HC	40·1	43·6	46·8	50·1	56·6	3·3	6·5	9·8	13·0	3. 40. 56·60		57·21				3. 41. 9·62	— 1·08
	39	ζ Persei	HC	18·5	21·9	25·0	28·2	34·8	41·2	44·6	47·8	51·0	3. 45. 34·74		35·34				3. 45. 47·75	— 1·08
	40	Groom. 750 (E&E)	HC	49·8	23·8	56·0	30·0	35·0	41·3	15·2	47·3	20·5	3. 55. 35·13		43·15				....	
	41	Piazzi III. 249...	HC	56·3	59·2	2·1	5·0	10·7	16·5	19·4	22·4	25·1	4. 0. 10·72		11·12				4. 0. 23·51	— 0·96
	42	h Tauri	HC	2·5	5·3	8·2	11·0	16·6	22·5	25·3	28·0	31·0	4. 12. 16·68		17·05				4. 12. 29·42	— 0·98
	43	ε Tauri.....	HC	24·9	27·9	30·6	33·6	39·5	45·2	48·3	51·2	54·1	4. 20. 39·44		39·86	52·22	12·36		4. 20. 52·22	— 1·07
	44	12 Leporis	HC	12·3	15·4	18·4	21·3	27·4	33·3	36·4	39·3	42·2	5. 36. 27·30		27·27				5. 36. 39·53	— 1·26

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, $31^r \cdot 200$.
Correction for passage of Semidiameter, No. 14, $+72^s \cdot 00$.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
January 23 and 24. The azimuthal error used is that determined on January 24 by tabular places of Polaris and η Piscium, allowing $-0^s \cdot 01$ for clock-rate.
January 25. The azimuthal error used is the mean of those ($-3'' \cdot 20$ and $-4'' \cdot 62$) determined by tabular places of Polaris and η Piscium, and of Cephei 51 and δ Geminorum, allowing $-0^s \cdot 02$ and $-0^s \cdot 04$ for clock-rate in each case respectively.

2, 3, 4, 12, 13. Cloudy.
14. Correction to R.A. on true Meridian, $+0^s \cdot 02$.
26, 33. Very tremulous.
3, 4, 29. Very faint.
15. Observed over the wires illuminated.
8. Extremely faint.
17, 18. The image very faint and diffused.
9, 20. Very cloudy.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R. A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R. A. of Center from the Observation.	Correction to Mean R. A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s			s	h m s	s
Feb. 4	1	19 Puppis .(E&E)	C	..	..	37·0	51·1	5·3	..	..	..	..	8. 4. 51·13	+0·80	51·41			11·70	8. 5. 3·50	— 1·65
	2	β Cancri...(E&E)	C	..	..	53·0	7·1	21·0	..	..	..	..	8. 9. 7·03	(+9·27)	7·50	19·62	12·12	[1·15]	....	
	3	d^1 Cancri ..(E&E)	C	..	..	19·1	33·6	48·3	..	..	..	..	8. 15. 33·67	[−1·02]	34·25	46·30	12·05		....	
	4	φ^1 Cancri ..(E&E)	C	..	..	55·3	11·0	26·6	..	..	..	..	8. 18. 10·97		11·66				8. 18. 23·76	— 1·62
Feb. 6	5	o Tauri	JC	..	..	..	13·6	19·2	24·7	27·5	30·4	33·2	3. 17. 19·15	(+10·00)	19·65	40·00	20·35	20·01	3. 17. 40·03	— 0·47
	6	f Tauri	JC	57·4	0·4	3·2	6·0	11·5	17·3	20·1	22·9	25·8	3. 23. 11·59		12·14	32·55	20·41	[2·68]	3. 23. 32·53	— 0·54
	7	ϵ Eridani	JC	5·4	8·4	11·1	13·9	19·5	25·3	28·1	30·8	33·6	3. 26. 19·53		19·86	40·28	20·42		3. 26. 40·25	— 0·36
	8	δ Eridani	E	18·0	20·9	..	26·5	32·0	37·6	..	43·4	46·2	3. 36. 32·06		32·39	53·10	20·71	20·29†	....	
	9	η Tauri	E	59·1	2·4	5·3	8·3	14·3	20·5	23·4	26·5	29·4	3. 39. 14·33		15·01	35·68	20·67		....	
	10	ζ Persei	JC	10·1	13·4	16·7	19·9	26·2	32·8	36·1	39·4	42·4	3. 45. 26·30		27·08			20·01	3. 45. 47·51	— 0·88
	11	Groom. 750 (E&E)	JC	..	13·5	46·5	19·3	25·0	31·5	4·0	37·5	..	3. 55. 24·90		32·65	53·39	20·74		....	
	12	Piazzi III. 249...	JC	..	..	53·6	56·6	2·3	8·1	11·0	13·8	16·6	4. 0. 2·25		2·85				4. 0. 23·31	— 0·78
	13	Groombridge 804.	JC	17·4	21·0	24·9	28·5	35·8	43·4	47·1	50·8	54·5	4. 8. 35·89		36·84				4. 8. 57·30	— 1·17
	14	54 Persei	JC	9·8	..	16·6	19·9	26·4	..	..	..	43·3	4. 11. 26·53		27·35				4. 11. 47·83	— 1·05
	15	58 Tauri.....	JC	..	..	..	38·0	43·7	..	..	..	58·0	4. 12. 43·69		44·27				4. 13. 4·75	— 0·83
	16	θ Canis Majoris..	JC	27·0	29·8	32·7	35·4	41·0	46·8	49·5	52·2	55·1	6. 47. 41·03		41·34	2·06	20·72		6. 48. 2·11	— 1·42
	17	Mars 1 L.....	JC	24·4	27·6	30·6	33·6	39·6	45·8	49·2	52·1	55·3	6. 53. 39·77		} 40·99				6. 54. 1·79	
	18	Mars 2 L.....	JC	25·3	28·5	31·5	34·6	40·6	47·1	50·1	53·2	56·3	6. 53. 40·77							
	19	47 Geminorum ..	JC	32·6	35·7	38·8	41·9	48·0	54·4	57·4	0·6	3·5	7. 2. 48·07		48·80				7. 3. 9·59	— 1·48
	20	52 Geminorum ..	JC	..	1·6	4·8	7·8	13·8	20·0	23·1	26·2	..	7. 6. 13·86		14·56				7. 6. 35·36	— 1·54
	21	65 Aurigæ	JC	31·9	35·5	38·9	42·4	49·3	56·4	59·7	3·2	6·6	7. 12. 49·29		50·16				7. 13. 10·97	— 1·71
	22	Castor.....	JC	30·1	33·6	36·8	40·0	46·5	53·2	56·4	59·6	2·9	7. 25. 46·53		47·32	8·27	20·95		7. 26. 8·16	— 1·64
	23	70 Geminorum ..	JC	11·9	15·3	18·7	..	..	..	..	..	45·6	7. 29. 28·77		29·62				7. 29. 50·47	— 1·70
	24	κ Geminorum....	JC	49·9	53·1	56·0	59·0	4·8	11·0	14·0	17·1	20·1	7. 36. 4·97		5·66				7. 36. 26·52	— 1·58
	25	4 Puppis	JC	..	..	..	..	30·0	35·7	38·4	41·5	44·4	7. 39. 29·98		30·27				7. 39. 51·13	— 1·60
	26	Thetis	JC	..	47·7	50·9	53·8	59·2	5·4	8·2	11·4	..	7. 44. 59·47		0·11				7. 45. 20·99	
	27	28 Monocerotis ..	JC	53·7	56·6	59·3	2·1	7·5	13·0	15·9	18·6	21·4	7. 54. 7·53		7·94				7. 54. 28·83	— 1·56
	28	λ U.Mi. S.P. (E&E)	JC	..	..	10·0	35·5	28·5	..	44·0	8·0	..	7. 56. 28·89		56·83	17·97	21·14		....	
	29	Astræa	JC	11·5	14·2	17·3	20·1	26·0	31·9	34·7	37·6	40·7	8. 1. 25·97		26·59				8. 1. 47·49	
	30	Euphrosyne	JC	52·6	58·4	3·8	10·2	21·2	33·6	38·4	44·3	50·1	8. 11. 21·34		22·84				8. 11. 43·76	
	31	22 Puppis	JC	..	..	..	..	..	18·2	20·8	23·7	26·6	8. 16. 12·36		12·66				8. 16. 33·59	— 1·67
	32	η Cancri	JC	26·0	29·1	32·1	35·0	40·9	46·8	49·8	52·8	55·7	8. 24. 40·89		41·53	2·42	20·89		8. 25. 2·48	— 1·58
	33	Bradley 1228....	JC	36·9	39·8	42·7	45·7	51·4	57·4	0·4	3·2	6·2	8. 33. 51·50		52·14				8. 34. 13·10	— 1·58
	34	Irene	JC	54·0	57·0	0·4	3·4	..	..	..	..	..	8. 45. 9·80		10·55				8. 45. 31·54	
	35	α Cancri.....	JC	38·5	41·3	44·2	47·1	52·9	58·6	1·2	4·1	6·9	8. 50. 52·73		53·29	14·21	20·92		8. 51. 14·29	— 1·57
	36	β Ophiuchi.....	P	17·3	20·2	22·9	25·7	31·2	36·7	39·6	42·3	45·1	17. 36. 31·20	(+11·04)	31·65	53·60	21·95	20·02	17. 36. 53·64	+ 0·53
	37	μ Herculis	P	..	..	..	..	51·7	58·0	1·2	4·3	7·5	17. 40. 51·75	[−2·21]	52·51	14·54	22·03	[2·68]	17. 41. 14·50	+ 0·72
	38	Venus 2 L.....	P	43·4	46·5	49·3	52·2	58·2	4·1	7·0	9·9	12·6	18. 8. 58·10		58·27				18. 9. 19·24	
	39	α Lyræ	P	44·2	47·9	51·6	55·1	2·1	9·2	12·7	16·4	19·8	18. 32. 2·07		3·03	25·09	22·06		18. 32. 25·12	+ 1·04
	40	γ Aquilæ	P	18·4	..	24·1	27·0	32·6	38·2	41·0	..	46·8	19. 39. 32·57		33·09	55·29	22·20		19. 39. 55·31	+ 0·90
	41	α Aquilæ	P	40·0	42·9	45·7	48·4	54·0	59·6	2·5	5·2	8·0	19. 43. 54·00		54·51	16·72	22·21		19. 44. 16·73	+ 0·90
Feb. 7	42	α Pegasi	P	30·0	32·9	35·9	38·7	44·2	50·1	53·0	55·8	58·6	22. 57. 44·33		44·92	7·48	22·56		22. 58. 7·51	+ 0·73
	43	β Andromedæ ...	P	36·9	40·4	43·6	47·1	53·6	0·6	4·0	7·4	10·6	1. 1. 53·76		54·64	17·50	22·86	22·70	1. 2. 17·45	+ 0·06
	44	Polaris ....(E&E)	P	58·5	..	45·0	..	25·5	13·0	7·0	..	..	1. 9. 25·02		54·87	17·75	22·88		....	
Feb. 8	45	δ Eridani	JC	13·2	16·1	19·0	21·8	..	33·0	35·8	38·7	41·5	3. 36. 27·36	(+10·06)	27·61	53·07	25·46	25·01†	....	
	46	η Tauri.....	JC	54·6	57·6	0·6	3·7	9·6	15·7	18·7	21·7	24·7	3. 39. 9·62		10·27	35·65	25·38	[2·76]	....	

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^r{\cdot}200$.

Correction for passage of Semidiameter, No. 38, $-1^s{\cdot}08$.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

February 6. The Transit-Clock was stopped, and both pairs of the contact-springs were cleaned.

February 6, μ Herculis, to February 10. The azimuthal error used is that determined on February 7 by tabular places of β Andromedæ and Polaris, allowing $0^s{\cdot}02$ for clock-rate.

14, 15, 17, 18, 19, 24, 35, 40, 45. Cloudy.

23. Very cloudy.

17, 18. Correction applied to R.A. of center for defect of illumination, $+0^s{\cdot}02$.

44, 45. Extremely faint.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Feb. 8	1	ε Tauri	E	11·1	14·0	16·9	..	25·8	..	34·5	37·4	40·4	4. 20. 25·70	+0·80	26·28	52·03	25·75	25·26	....	
	2	59 Persei	E	44·2	48·1	51·8	55·5	3·1	10·7	..	18·2	..	4. 33. 3·09	(+10·06)	4·06			[2·76]	4. 33. 29·84	− 1·29
	3	Bradley 661	E	43·4	47·0	..	53·7	0·6	7·5	..	14·4	17·9	4. 43. 0·60	[−2·21]	1·44				4. 43. 27·24	− 1·21
	4	ι Aurigæ	E	38·2	41·6	44·9	48·1	54·7	..	..	..	..	4. 47. 54·70		55·47	21·29	25·82		....	
	5	Venus 2 L.	C	17·4	20·4	23·3	26·3	32·1	38·0	41·0	43·9	46·8	18. 16. 32·11	(+9·32)	32·24			24·99	18. 16. 58·24	
	6	α Aquilæ	C	35·2	38·0	40·8	..	49·1	..	57·5	0·4	3·0	19. 43. 49·11		49·53	16·75	27·22	[2·72]	....	
Feb. 9	7	⊙ 1 L.	C	8·4	11·4	14·2	17·1	22·8	28·6	31·4	34·3	37·0	21. 29. 22·77		} 30·28					
	8	⊙ 2 L.	C	23·2	26·0	28·9	31·7	37·4	43·1	46·0	49·0	51·8	21. 31. 37·42						21. 30. 57·70	
Feb. 10	9	☽ 1 L.	JC	..	..	..	..	..	..	34·2	37·3	40·1	2. 9. 25·68		26·10			30·68†	2. 11. 4·33	
	10	μ Geminorum	E	9·2	12·4	15·4	18·2	24·2	30·3	33·4	36·3	39·3	6. 14. 24·27		24·85	56·20	31·35	[2·69]	....	
	11	β Canis Majoris	E	5·8	8·8	11·6	14·7	20·4	26·1	29·2	32·0	34·8	6. 16. 20·35		20·50	51·92	31·42		....	
	12	Venus 2 L.	D	1·4	4·3	7·4	10·2	16·0	22·0	24·9	27·8	30·7	18. 24. 16·05	+0·83	16·25			30·33	18. 24. 47·74	
	13	α Lyræ	D	34·2	37·7	41·3	44·8	51·8	58·9	2·4	6·1	9·4	18. 31. 51·81	(+9·74)	52·68	25·19	32·51	[2·87]	18. 32. 25·23	+ 0·94
	14	β Lyræ	D	19·5	22·8	26·1	29·4	36·0	42·6	46·0	49·3	52·5	18. 44. 35·98	[−1·27]	36·77	9·30	32·53		18. 45. 9·33	+ 0·89
	15	α Aquilæ	D	29·7	32·6	35·4	38·1	43·6	49·4	52·1	54·9	57·6	19. 43. 43·68		44·17	16·78	32·61		19. 44. 16·85	+ 0·84
Feb. 11	16	⊙ 1 L.	D	57·9	0·9	3·7	6·6	12·2	18·0	20·9	23·7	26·6	21. 37. 12·25		} 19·61					
	17	⊙ 2 L.	D	12·1	15·2	18·0	20·8	26·4	32·2	35·0	37·9	40·7	21. 39. 26·45						21. 38. 52·51	
	18	δ Arietis	D	13·3	16·2	19·3	22·1	28·0	33·8	36·8	39·7	42·5	3. 3. 27·93		28·53	2·07	33·54	33·20	3. 4. 2·09	− 0·42
	19	☽ 1 L.	D	6·2	9·3	12·1	15·0	20·9	26·6	29·7	32·6	35·4	3. 6. 20·84		21·38				3. 8. 3·70	
	20	ε Tauri	D	51·9	54·6	57·4	0·2	5·9	11·4	14·3	17·0	19·8	3. 17. 5·80		6·29	39·92	33·63		3. 17. 39·88	− 0·39
	21	ζ Tauri	D	44·1	47·0	49·8	52·7	58·2	4·0	6·9	9·6	12·4	3. 22. 58·27		58·80	32·47	33·67		3. 23. 32·40	− 0·46
	22	γ^1 Eridani	D	1·8	4·8	7·5	10·3	15·9	21·7	24·4	27·5	30·1	3. 51. 15·97		16·23	49·86	33·63		3. 51. 49·89	− 0·40
	23	λ Tauri	D	31·2	34·0	36·9	39·7	45·3	50·9	53·8	56·6	59·3	3. 52. 45·27		45·79				3. 53. 19·45	− 0·61
	24	54 Persei	D	56·5	59·9	3·2	6·6	13·2	20·0	23·3	26·6	30·0	4. 11. 13·22		14·02				4. 11. 47·72	− 0·96
	25	55 Persei	D	1·4	4·9	8·2	11·4	18·0	..	..	..	..	4. 15. 18·07		18·86				4. 15. 52·57	− 0·97
	26	56 Persei	D	..	..	..	..	26·8	33·5	36·9	40·2	43·5	4. 15. 26·84		27·63				4. 16. 1·34	− 0·97
	27	β Tauri	D	35·6	38·4	41·3	44·1	49·7	55·4	58·3	1·1	3·8	4. 20. 49·71		50·25				4. 21. 23·97	− 0·77
	28	Aldebaran	D	29·5	32·5	35·4	38·3	43·9	49·7	52·7	55·5	58·3	4. 27. 43·95		44·52	18·30	33·78		4. 28. 18·25	− 0·83
	29	ε Leporis	C	1·9	5·0	7·9	10·9	16·7	23·0	25·9	28·9	31·8	4. 59. 16·86		17·03	50·65	33·62	33·07†	....	
	30	δ Orionis	C	25·8	28·6	31·3	34·1	39·6	45·2	48·0	50·7	53·4	5. 24. 39·60		40·00	13·75	33·75		....	
Feb. 14	31	Polaris ....(E&E)	K	..	..	..	..	..	..	48·0	43·5	34·5	1. 9. 6·41	(+9·67)	30·23	12·83	42·60		....	
	32	ζ Tauri	E	34·8	37·6	40·4	43·3	48·9	54·6	57·4	0·4	3·1	3. 22. 48·91	[−0·32]	49·48	32·42	42·94	42·47†	....	
	33	ε Eridani	E	42·9	45·7	48·4	51·3	57·0	2·6	5·4	8·2	11·0	3. 25. 56·91		57·27	40·16	42·89	[3·15]	....	
	34	ρ Aurigæ	K	..	..	..	..	..	48·5	52·2	55·9	59·4	5. 11. 40·99		41·92			42·40	5. 12. 25·00	− 1·32
	35	8 Leporis	K	28·3	31·1	34·1	36·9	42·5	48·2	51·2	54·0	56·9	5. 16. 42·55		42·87				5. 17. 25·96	− 0·87
	36	31 Orionis	K	2·3	5·1	7·9	10·6	16·1	21·7	24·6	27·3	30·0	5. 22. 16·15		16·59				5. 22. 59·69	− 0·94
	37	Brad. 801 (1st star)	K	34·6	37·2	40·1	42·9	48·3	54·0	56·9	59·5	2·2	5. 27. 48·38		48·77				5. 28. 31·88	− 0·95
	38	Brad. 801 (2d star)	K	36·1	39·1	41·9	44·6	50·1	55·7	58·4	1·3	4·0	5. 27. 50·11		50·50				5. 28. 33·61	− 0·95
	39	Bradley 824	K	58·2	1·1	3·9	6·9	12·4	18·1	21·2	23·9	26·8	5. 36. 12·47		13·06				5. 36. 56·19	− 1·10
	40	γ Leporis	K	57·7	0·8	3·6	6·9	12·8	18·7	21·5	24·9	27·9	5. 38. 12·73		12·97				5. 38. 56·11	− 0·99
	41	χ^1 Orionis	K	33·1	36·0	39·0	41·9	..	53·8	56·7	59·4	2·5	5. 45. 47·77		48·42				5. 46. 31·57	− 1·17
	42	38 Aurigæ	K	41·1	45·1	48·8	52·4	0·0	7·6	11·5	15·1	19·0	5. 53. 0·03		0·99				5. 53. 44·16	− 1·52
	43	ν Orionis	K	1·7	4·7	7·4	10·4	16·1	22·0	24·8	27·6	30·4	5. 59. 16·09		16·68	59·88	43·20		5. 59. 59·86	− 1·19
	44	f^1 Orionis	K	..	..	31·7	34·9	40·4	46·3	49·1	52·1	55·1	6. 3. 40·50		41·10				6. 4. 24·29	− 1·22
	45	☽ 1 L.	K	41·4	44·5	47·4	50·5	56·5	2·6	5·4	8·4	11·6	6. 9. 56·45		57·07				6. 11. 52·03	

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, $31^{r}\cdot200$.
Corrections for passage of Semidiameter, Nos. 5, 9, 12, 19, and 45, $-1^{s}\cdot06$: $+67^{s}\cdot29$: $-1^{s}\cdot03$: $+68^{s}\cdot73$: and $+71^{s}\cdot72$.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
February 11. The azimuthal error used is the mean of those ($-2''\cdot21$ and $-0''\cdot32$) determined on February 7 and February 14.
February 14 to 17. The azimuthal error used is that determined by tabular places of Polaris and ν Orionis on February 14, allowing $-0^{s}\cdot60$ for clock-rate.

1, 4. Cloudy.

9. Extremely cloudy.

9, 19, 45. Corrections to R.A. on true Meridian, $+0^{s}\cdot02$, $+0^{s}\cdot02$, $+0^{s}\cdot03$.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth]	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
																		13·14		
Feb. 23	1	α Hydræ	JC	36·0	38·7	41·6	44·5	50·0	55·6	58·2	1·2	3·9	9. 20. 49·94	+0·44	50·14	4·78	14·64	[3·79]	9. 21. 4·76	— 1·71
	2	o Leonis	C	35·6	38·5	41·2	44·0	49·6	55·4	58·1	1·0	3·7	9. 33. 49·64	(+8·75)	50·02	4·61	14·59	13·08†	....	
	3	ϵ Leonis	C	..	52·3	55·4	58·3	4·3	10·5	13·5	16·4	..	9. 38. 4·35	[−2·18]	4·89	19·49	14·60		....	
	4	g Leonis	JC	51·0	54·0	57·1	0·0	6·1	12·2	15·4	18·4	21·4	9. 44. 6·15		6·70			13·14	9. 44. 21·36	— 1·62
	5	π Leonis	JC	43·4	46·4	49·2	51·8	57·4	3·2	5·9	8·8	11·5	9. 52. 57·48		57·85	12·62	14·77		9. 53. 12·55	— 1·63
	6	λ Virginis	E	26·2	29·0	31·8	34·8	40·4	46·0	48·9	51·7	54·6	14. 11. 40·35		40·51			13·40	14. 11. 56·15	— 1·20
	7	f Boötis	E	46·2	49·2	52·1	55·0	0·9	6·8	9·8	12·7	15·6	14. 20. 0·90		1·39	17·07	15·68		....	
	8	) 2 L.	E	59·2	2·2	5·0	8·0	13·8	19·5	22·4	25·4	28·2	14. 35. 13·72		13·89				14. 34. 26·19	
	9	ϵ Boötis	E	39·6	42·7	45·9	48·9	55·1	1·4	4·5	7·7	10·6	14. 38. 55·13		55·71	11·39	15·68		....	
															38·45	57·57	19·12	17·05†	....	
Feb. 24	10	τ Boötis	D	23·5	26·4	29·3	32·2	37·9	43·9	46·7	49·7	52·5	13. 40. 37·98		2·92	22·16	19·24	[3·72]	....	
	11	η Boötis	D	47·8	50·9	53·7	56·6	2·4	8·3	11·3	14·1	17·1	13. 48. 2·44		26·13	45·45	19·32	16·93	....	
	12	ψ Boötis	C	10·0	13·2	16·2	19·4	25·6	31·8	35·0	38·0	41·1	14. 58. 25·56		20·43				15. 4. 39·68	— 1·02
	13	ι1 Libræ	C	5·6	8·8	11·5	14·6	20·2	26·3	29·2	32·1	35·0	15. 4. 20·34		32·73	52·00	19·27		....	
	14	β Libræ	C	18·6	21·3	24·1	27·0	32·5	38·1	41·0	43·8	46·6	15. 9. 32·53		0·28				15. 24. 16·02	
	15	) 2 L.	C	45·6	48·4	51·4	54·2	0·2	6·0	9·0	11·9	14·8	15. 25. 0·14						15. 29. 8·17	
	16	Saturn 1 L.	C	33·8	36·6	39·6	42·4	48·0	54·0	56·8	59·5	2·4	15. 28. 48·09		} 48·86					
	17	Saturn 2 L.	C	35·0	37·9	40·9	43·6	49·3	55·1	58·0	1·0	3·9	15. 28. 49·38						15. 50. 45·34	— 0·68
	18	48 Libræ	C	11·6	14·5	17·4	20·1	26·0	31·5	34·4	37·3	40·0	15. 50. 25·83		25·97				....	
	19	β1 Scorpii	C	9·0	12·0	15·0	17·9	23·7	29·6	32·5	35·5	38·4	15. 57. 23·71		23·80	43·10	19·30			
																		16·90		
Feb. 25	20	⊙ 1 L.	P	12·6	15·4	18·2	21·1	26·8	32·4	35·1	38·0	40·6	22. 31. 26·66	+0·71	} 32·50			[3·79]	22. 32. 52·96	
	21	⊙ 2 L.	P	24·0	26·7	29·6	32·2	37·9	43·8	46·2	49·2	51·8	22. 33. 37·90	(+10·06)	51·09	13·31	22·22		....	
	22	μ Leonis	P	35·0	38·0	41·2	44·3	50·4	56·7	59·7	3·0	5·9	9. 44. 50·44	[−2·85]	50·37	12·62	22·25		....	
	23	π Leonis	P	36·0	38·9	41·5	44·4	50·0	55·6	58·3	1·3	3·8	9. 52. 49·95		14·18			20·69	9. 59. 36·44	— 1·68
	24	21 Leonis Minoris	P	56·4	59·6	3·3	6·6	..	20·3	23·8	26·9	30·4	9. 59. 13·37							
																		24·34	....	
										30·1	42·9	45·1	6. 14. 30·05		30·65	55·97	25·32	[3·79]	6. 39. 18·21	— 1·13
Feb. 26	25	μ Geminorum	HC	15·1	18·1	21·1	24·1	..	..	39·1	42·0	45·1	6. 14. 30·05		52·83					
	26	Sirius	HC	38·2	41·1	44·2	47·0	52·6	58·4	1·4	4·3	7·3	6. 38. 52·69							
																		32·55	o. 6. 22·92	+ 0·61
Feb. 28	27	γ Pegasi	E	..	38·4	41·3	44·1	49·8	55·5	58·5	1·3	..	o. 5. 49·80	(+11·11)	50·35	22·75	32·40	[4·00]	6. 48. 1·77	— 1·14
	28	θ Canis Majoris	E	13·7	16·6	19·4	22·3	27·9	33·5	36·4	39·3	42·0	6. 47. 27·87		28·09	1·78	33·69		6. 52. 35·05	
	29	Mars 1 L.	E	..	48·0	51·0	54·1	0·2	6·3	9·4	12·4	..	6. 52. 0·16		0·88				6. 57. 45·63	— 1·21
	30	γ Canis Majoris	E	57·4	0·3	3·1	6·0	11·7	17·5	20·4	23·4	26·1	6. 57. 11·74		11·92	45·70	33·78		....	
	31	Groom. 1119 (E&E)	E	..	..	..	..	..	3·0	44·5	23·0	..	7. 18. 39·90		23·41	57·31	33·90		7. 32. 21·62	— 1·32
	32	Procyon	E	..	..	39·2	41·9	47·3	52·9	55·8	..	..	7. 31. 47·39		47·83	21·67	33·84		7. 41. 44·35	— 1·40
	33	5 Puppis	E	56·2	59·0	1·6	4·7	10·4	16·0	18·9	21·7	24·4	7. 41. 10·30		10·52				7. 44. 49·46	— 1·37
	34	ζ Canis Minoris	E	1·3	4·2	7·0	9·7	15·2	20·7	23·6	26·4	29·2	7. 44. 15·23		15·63				19. 48. 34·04	+ 2·06
	35	ϵ Draconis S.P.	E	..	29·7	37·7	45·7	1·6	18·1	26·1	34·1	..	7. 48. 1·96		0·21				7. 54. 28·80	— 1·42
	36	28 Monocerotis	E	40·7	43·4	46·3	49·0	54·6	0·2	3·0	5·7	8·5	7. 53. 54·57		54·93				8. 2. 12·19	— 1·49
	37	ψ1 Cancri	E	..	..	..	..	..	..	46·9	50·0	53·0	8. 1. 37·60		38·32				8. 9. 19·58	— 1·45
	38	β Cancri	E	31·2	34·0	36·8	39·6	45·2	50·8	53·6	56·5	59·3	8. 8. 45·19		45·68	19·52	33·84		8. 17. 12·76	— 1·48
	39	Bradley 1188	E	23·7	26·6	29·6	32·5	..	..	..	50·0	52·8	8. 16. 38·26		38·85				8. 25. 2·47	— 1·50
	40	η Cancri	E	13·0	16·0	19·0	22·0	27·9	33·9	36·8	39·9	42·7	8. 24. 27·88		28·52	2·34	33·82		20. 27. 18·98	+ 1·51
	41	θ Cephei S.P.	E	16·2	22·4	28·1	34·1	46·0	58·0	3·8	10·1	16·2	8. 26. 46·17		45·03				8. 32. 4·78	— 1·60
	42	Bradley 1219	E	13·5	16·8	20·2	23·5	30·0	36·5	39·9	43·1	46·6	8. 31. 29·98		30·81				8. 37. 13·10	— 1·60
	43	σ1 Cancri	E	22·2	25·4	28·7	32·0	38·4	44·4	48·3	51·4	54·5	8. 36. 38·32		39·12				8. 42. 25·78	— 2·40
	44	b Ursæ Majoris	E	..	..	..	..	50·0	2·2	8·0	14·0	20·0	8. 41. 50·03		51·79				8. 44. 30·16	— 1·59
	45	ρ1 Cancri	E	39·8	42·9	46·0	49·0	55·4	1·6	4·9	8·1	11·3	8. 43. 55·41		56·17					

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·200.

Corrections for passage of Semidiameter, Nos. 8, 15, and 29, −63s·39: −63s·57: and +0s·47.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

February 25 to March 1. The azimuthal error used is the mean of those (−2″·89 and −2″·80) determined on February 28 by tabular places of Groombridge 1119 and Procyon, and of γ Geminorum and Cephei 51 on March 1, allowing 0s·03 and 0s·02 for clock-rate in each case respectively.

1. Very faint. 8. Correction to R.A. on true Meridian, +0s·01. 20, 21. The limbs very badly defined. 25. Very faint. 37, 39. Cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	n	s	s	s	s	h m s	s
Feb. 28	1	64 Cancri	E	32·5	35·9	39·2	42·4	49·0	55·7	58·9	2·1	5·6	8. 50. 48·99	+0·71	49·83			32·55	8. 51. 23·85	— 1·63
	2	f^1 Cygni S.P. ...	E	23·4	27·1	31·2	35·3	43·6	51·7	55·6	59·8	3·9	8. 54. 43·55	(+11·11)	43·04			[4·00]	20. 55. 17·07	+ 0·96
	3	σ^2 Ursæ Majoris .	E	..	..	44·2	51·4	5·7	20·3	27·5	..	..	8. 58. 5·74	[−2·85]	7·90				8. 58. 41·94	— 2·81
	4	ι Leonis	E	..	..	..	..	44·5	50·7	53·7	56·9	59·8	9. 37. 44·59		45·28	19·49	34·21		9. 38. 19·43	— 1·62
	5	Regulus	E	29·7	32·7	35·6	38·2	43·9	49·8	52·4	55·4	58·2	10. 0. 43·96		44·49	18·81	34·32		10. 1. 18·71	— 1·62
	6	ζ Herculis	JC	24·7	28·0	31·1	34·3	41·0	47·5	50·7	53·7	57·1	16. 35. 40·87		41·68	16·58	34·90	32·21†	....	
	7	ι Herculis.....	JC	..	..	..	..	36·3	42·9	46·1	49·4	52·4	16. 54. 36·34		37·14	12·23	35·09		....	
Mar. 1	8	40 Aurigæ	C	30·2	34·2	37·5	41·1	48·0	55·2	58·6	2·2	5·6	5. 56. 48·02		48·96			36·28	5. 57. 26·28	— 1·16
	9	f^1 Orionis	C	31·8	34·7	..	..	..	52·2	..	57·9	0·6	6. 3. 46·25		46·83			[4·21]	6. 4. 24·15	— 0·99
	10	Bradley 912	C	45·2	48·8	52·1	55·6	2·3	9·1	12·5	15·8	19·2	6. 8. 2·25		3·12				6. 8. 40·48	— 1·16
	11	μ Geminorum ...	C	3·0	6·0	8·9	12·1	17·9	23·8	27·0	29·9	33·0	6. 14. 17·92		18·58	55·93	37·35		....	
	12	Uranus.....	C	8·0	11·2	14·1	17·1	23·3	29·2	32·3	35·2	38·3	6. 18. 23·27		23·94				6. 19. 1·33	
	13	γ Geminorum ...	C	10·4	13·4	16·0	19·0	24·8	30·6	33·5	36·4	39·2	6. 29. 24·78		25·36	2·78	37·42		....	
	14	Cephei 51 (E & E)	C	47·0	46·5	44·0	41·0	35·0	..	..	..	..	6. 36. 35·23		51·00	28·39	37·39		....	
	15	11 Canis Majoris.	C	56·1	59·1	2·0	4·9	10·5	16·3	19·2	22·0	24·9	6. 40. 10·53		10·72				6. 40. 48·17	— 1·09
Mar. 2	16	α Orionis	JC	3·0	6·0	8·8	11·4	..	..	..	..	..	5. 47. 17·03	[−2·98]	17·48	59·16	41·68	40·75	5. 47. 59·18	— 0·85
	17	1 Geminorum ...	JC	5·6	8·7	11·6	14·9	21·0	26·8	30·0	32·9	36·0	5. 55. 20·81		21·48	3·16	41·68	[3·94]	5. 56. 3·20	— 0·98
	18	η Geminorum....	JC	54·7	57·7	0·7	3·6	9·6	15·7	18·8	21·7	24·6	6. 6. 9·64		10·30	52·01	41·71		6. 6. 52·05	— 1·02
	19	Cephei 51 . (E&E)	JC	..	..	38·5	35·0	30·0	26·5	25·5	..	..	6. 36. 30·49		46·36	28·07	41·71		....	
	20	Mars 1 L.....	JC	42·9	46·2	49·1	52·1	58·2	4·5	7·6	10·7	13·7	6. 52. 58·30		59·02				6. 53. 41·36	
	21	63 Aurigæ	JC	30·8	34·5	38·2	41·7	48·6	..	..	..	..	7. 1. 48·77		49·73				7. 2. 31·63	— 1·42
	22	δ Geminorum....	JC	14·4	17·4	20·5	23·5	29·4	35·4	38·4	41·4	44·2	7. 11. 29·37		30·03	11·99	41·96		7. 12. 11·96	— 1·29
	23	65 Aurigæ	JC	10·4	14·0	17·4	21·0	27·7	34·6	38·2	41·7	45·1	7. 12. 27·75		28·65				7. 13. 10·58	— 1·42
	24	58 Geminorum ..	JC	32·2	35·3	38·3	41·3	47·1	53·3	56·3	59·1	2·0	7. 14. 47·18		47·85				7. 15. 29·78	— 1·30
	25	Regulus	JC	21·6	24·5	27·4	30·1	36·0	41·6	44·5	47·5	50·1	10. 0. 35·89		36·41	18·82	42·41		10. 1. 18·80	— 1·63
	26	Bradley 1408....	JC	..	..	..	..	8·8	14·5	17·5	20·5	23·4	10. 1. 8·71		9·32				10. 1. 51·71	— 1·62
	27	Bradley 1416....	JC	..	37·1	40·4	43·7	50·2	56·7	0·0	3·3	..	10. 5. 50·16		50·98				10. 6. 33·38	— 1·66
	28	33 Leonis Minoris	JC	19·7	23·2	26·6	29·6	36·2	43·0	46·1	49·5	53·0	10. 23. 36·28		37·12				10. 24. 19·57	— 1·65
	29	40 Sextantis	JC	37·8	40·5	43·3	46·0	51·5	57·2	0·0	2·6	5·4	10. 41. 51·56		51·88				10. 42. 34·38	— 1·74
	30	b^2 Hydræ	JC	40·3	43·2	46·0	49·0	54·9	0·7	3·5	6·4	9·4	10. 43. 54·79		54·93				10. 44. 37·44	— 1·93
	31	56 Leonis	JC	12·0	14·7	17·5	20·2	25·7	31·4	34·1	36·9	39·6	10. 48. 25·76		26·21				10. 49. 8·73	— 1·66
	32	Lal.(F)1729(E&E)	JC	..	..	..	21·0	33·0	..	21·5	1·0	..	10. 55. 32·42		59·12	41·97	42·85		....	
	33	Piazzi X. 228....	JC	..	..	..	..	..	45·0	48·4	52·1	55·8	10. 56. 37·83		38·77				10. 57. 21·30	— 1·65
	34	δ Leonis	JC	..	..	11·3	14·3	20·2	..	29·4	..	..	11. 6. 20·26		20·89	3·51	42·62		11. 7. 3·46	— 1·59
	35	σ Ophiuchi	E	57·1	0·0	2·8	5·5	11·0	16·6	19·4	22·1	25·0	17. 19. 11·03		11·44	55·19	43·75	40·84†	....	
	36	α Ophiuchi	E	47·4	50·3	53·1	56·0	1·6	7·4	10·3	13·0	15·8	17. 28. 1·63		2·15	45·80	43·65		....	
Mar. 4	37	α Andromedæ ...	D	26·0	29·2	32·1	35·4	41·6	48·0	51·2	54·3	57·3	0. 0. 41·65	+0·62	42·40	30·46	48·06	48·06	0. 1. 30·46	+ 0·58
	38	Polaris ....(E&E)	K	..	..	..	..	..	..	25·5	17·5	11·0	1. 8. 42·77	(+10·98)	13·06	1·17	48·11	[3·13]	....	
	39	α Orionis	D	56·0	58·8	1·6	4·4	9·7	15·4	18·3	21·1	23·8	5. 47. 9·87	[−2·86]	10·32	59·12	48·80		5. 47. 59·13	— 0·81
	40	3 Monocerotis ...	D	32·8	35·6	38·4	41·3	46·8	52·5	55·3	58·1	0·9	5. 54. 46·82		47·04				5. 55. 35·87	— 0·78
	41	Bradley 889.....	D	..	..	..	..	22·1	27·8	30·6	33·4	36·1	5. 58. 22·10		22·33				5. 59. 11·17	— 0·80
	42	η Geminorum....	D	47·5	50·5	53·5	56·6	2·4	8·5	11·5	14·4	17·4	6. 6. 2·45		3·11	51·97	48·86		6. 6. 51·96	— 0·98
	43	μ Geminorum ...	D	51·5	54·4	57·4	0·4	6·3	12·3	15·4	18·3	21·2	6. 14. 6·32		6·98	55·87	48·89		6. 14. 55·86	— 1·02
	44	Uranus.....	D	49·8	52·8	55·9	58·8	4·8	11·0	13·9	17·0	19·9	6. 18. 4·85		5·52				6. 18. 54·40	

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·200.
Correction for passage of Semidiameter, No. 20, +0s·46.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
March 2. The azimuthal error used is the mean of those (−2″·80 and −3″·17) determined by tabular places of Cephei 51 and δ Geminorum, and of Regulus and Lalande (F) 1729, allowing 0s·10 and 0s·15 for clock-rate in each case respectively.
March 4 and 5. The azimuthal error used is the mean of three determinations, viz., by tabular places of α Andromedæ and Polaris on March 4, and of δ Ursæ Minoris S.P. and Cephei 51, and of Procyon and λ Ursæ Minoris S.P. on March 5, allowing 0s·14, 0s·04, and 0s·04 for clock-rate in each case respectively. The separate results are −2″·80, −2″·72, and −3″·05.

7, 38. Extremely cloudy.
30. Faint; cloudy.
16. Extremely faint; cloudy.
32. Faint.
17, 19, 24. Very cloudy.
44. Faint.
6, 18, 20, 27, 34, 41. Cloudy.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Mar. 16	1	*h* Leonis	E	24·4	27·4	30·1	33·0	38·6	44·2	47·2	49·9	52·7	9. 24. 38·58	+0·96	38·99			11·51	9. 24. 51·20	— 1·51
	2	ο Leonis	E	37·9	40·8	43·5	46·4	51·9	57·6	0·4	3·3	6·0	9. 33. 51·95	(+10·68)	52·36	4·52	12·16	[1·80]	9. 34. 4·58	— 1·53
	3	*l* Leonis	E	30·7	33·5	36·5	39·2	4·8	10·4	13·4	16·1	19·0	10. 42. 4·81	[−4·63]	5·24	17·50	12·26		10. 42. 17·55	— 1·65
	4	Juno	E	0·6	3·5	6·3	9·0	14·7	20·1	23·0	25·7	28·6	10. 47. 14·58		14·92				10. 47. 27·24	
	5	Brad. 3147 S.P. (E&E)	E	..	..	21·0	7·5	41·0	12·0	59·0	..	..	11. 27. 40·60		27·15				23. 27. 39·52	+11·28
	6	Elpis	E	26·2	29·0	32·0	34·6	40·2	46·0	48·5	51·4	54·0	11. 38. 40·19		40·50				11. 38. 52·88	
	7	β Leonis	E	50·9	53·8	56·5	59·3	5·1	11·0	13·8	16·7	19·5	11. 42. 5·15		5·63	18·09	12·46		11. 42. 18·02	— 1·65
	8	Victoria	E	51·6	54·7	57·5	0·3	5·7	11·3	14·6	17·2	20·2	11. 55. 5·87		5·99				11. 55. 18·39	
	9	Groom. 1850 (E&E)	E	..	..	..	..	..	12·5	54·5	39·0	21·5	11. 57. 45·38		58·42				11. 58. 10·83	−10·99
	10	Eunomia	E	42·5	45·5	48·6	51·4	57·1	3·0	5·8	8·8	11·7	12. 7. 57·12		57·14				12. 8. 9·56	
	11	Brad. 1672. (E&E)	E	..	..	..	..	1·0	24·5	6·5	..	..	12. 14. 0·81		30·87				12. 14. 43·30	−24·19
	12	Polaris S.P. (E&E)	E	..	43·0	34·0	29·5	18·5	3·0	..	..	..	13. 10. 17·64		44·56	55·91	11·35		1. 9. 57·05	+21·45
Mar. 17	13	δ Leonis	JC	34·2	37·3	40·3	43·2	49·1	55·1	58·0	0·9	3·8	11. 6. 49·07		49·63	3·56	13·93	13·14† [1·71]	....	
Mar. 20	14	*f* Boötis	P	43·6	46·4	49·4	52 0	58·2	3·9	7·0	9·7	12·8	14. 19. 58·08	+0·40	58·56	17·64	19·08	18·03†	....	
	15	ξ^2 Libræ	P	1·7	4·7	7·4	10·2	15·8	21·4	24·4	27·0	29·8	14. 49. 15·79	(+9·62) [−3·70]	15·91	34·85	18·94	[1·62]	....	
Mar. 21	16	Mars 1 L.	C	30·1	33·3	36·4	39·4	45·4	51·6	54·6	57·7	0·8	7. 11. 45·45		46·01			19·52	7. 12. 6·44	
	17	β Canis Minoris	C	22·9	25·7	28·4	31·4	36·8	42·4	45·3	48·1	50·8	7. 19. 36·83		37·17	57·17	20·00	[1·70]	....	
	18	Bradley 1090	C	5·7	9·0	12·2	15·4	21·8	28·4	31·6	34·9	38·0	7. 26. 21·85		22·50				7. 26. 42·55	— 1·06
	19	70 Geminorum	C	12·2	15·7	19·0	22·4	29·1	36·1	39·4	42·9	46·1	7. 29. 29·17		29·89				7. 29. 49·94	— 1·10
	20	Bradley 1107	C	..	..	35·5	38·2	43·8	49·4	52·2	..	..	7. 32. 43·79		44·09				7. 33. 4·14	— 1·02
	21	Pollux	C	35·2	38·3	41·4	44·5	50·8	57·1	0·4	3·6	6·6	7. 36. 50·85		51·45	11·54	20·09		....	
	22	2 Puppis (1st Star)	C	48·4	51·4	54·2	57·0	2·6	8·4	11·3	14·1	16·9	7. 39. 2·67		2·75				7. 39. 22·81	— 1·07
	23	2 Puppis (2d Star)	C	48·9	51·9	54·6	57·4	3·1	8·9	11·8	14·6	17·4	7. 39. 3·15		3·23				7. 39. 23·29	— 1·07
	24	8 Puppis	C	54·6	57·4	0·3	3·1	8·8	14·5	17·4	20·2	23·0	7. 45. 8·78		8·87				7. 45. 28·94	— 1·10
	25	7 Cancri	C	25·0	27·9	30·8	33·8	39·7	45·7	48·8	51·7	54·7	7. 55. 39·75		40·26				7. 56. 0·34	— 1·15
	26	ψ^1 Cancri	C	35·6	38·9	42·0	45·0	51·1	57·3	0·5	3·4	6·7	8. 1. 51·14		51·71				8. 2. 11·80	— 1·19
	27	18 Puppis	C	57·0	59·8	2·6	5·4	11·1	16·9	19·6	22·5	25·4	8. 4. 11·12		11·21				8. 4. 31·30	— 1·21
	28	β Cancri	C	44·9	47·6	50·5	53·2	58·7	4·4	7·4	10·1	12·8	8. 8. 58·81		59·16	19·25	20·09		....	
	29	*b* Ursæ Majoris	C	33·6	39·6	45·6	51·6	3·3	..	..	..	..	8. 42. 3·44		4·97				8. 42. 25·11	— 1·89
	30	ρ^1 Cancri	C	53·4	56·5	59·7	2·9	9·0	15·4	18·7	21·7	24·9	8. 44. 9·10		9·70				8. 44. 29·84	— 1·35
	31	64 Cancri	C	46·4	49·7	53·0	56·2	2·9	9·4	12·8	16·1	19·3	8. 51. 2·83		3·50				8. 51. 23·65	— 1·40
	32	ρ Leonis	E	15·2	18·0	20·8	23·5	29·2	34·9	37·6	40·6	43·4	10. 25. 29·21		29·56	50·01	20·45	19·75†	....	
	33	34 Sextantis	E	12·5	15·3	18·1	20·7	26·3	31·9	34·5	37·4	40·2	10. 35. 26·29		26·58	47·10	20·52		....	
Mar. 24	34	ε Boötis	D	30·0	33·2	36·3	39·4	45·6	51·9	55·0	58·1	1·2	14. 38. 45·60	[−2·76]	46·22	12·11	25·89	24·88†	....	
	35	α^2 Libræ	D	52·9	55·7	58·6	1·5	7·2	12·9	15·8	18·6	21·5	14. 43. 7·16		7·27	33·22	25·95	[1·71]	....	
	36	ὃ Ophiuchi	JC	43·9	46·6	49·4	52·1	57·6	3·3	6·0	8·8	11·6	16. 6. 57·67		57·93	23·89	25·96		....	
Mar. 25	37	σ^2 Ursæ Majoris	HC	35·9	43·2	50·4	57·8	12·2	..	..	..	..	8. 58. 12·21	+0·97	13·83			26·71	8. 58. 41·03	— 2·08
	38	κ Cancri	HC	52·2	55·1	57·8	0·7	6·2	12·0	14·8	17·6	20·2	9. 0. 6·26	(+7·68)	6·61	33·82	27·21	[1·32]	9. 0. 33·82	— 1·33
	39	83 Cancri	HC	52·4	55·4	58·3	1·2	7·0	12·9	15·8	18·8	21·6	9. 11. 7·01		7·43	34·63	27·20		9. 11. 34·65	— 1·36
	40	α Lyncis	HC	13·4	16·9	20·2	23·6	..	37·1	40·5	43·8	47·2	9. 12. 30·30		30·93				9. 12. 58·15	— 1·41
	41	*h* Ursæ Majoris	HC	..	..	15·3	21·6	34·0	46·5	52·8	..	..	9. 20. 33·97		35·35				9. 21. 2·57	— 1·97
	42	43 Lyncis	HC	0·7	4·4	8·1	11·7	18·9	..	..	..	..	9. 33. 18·89		19·60				9. 33. 46·83	— 1·52
	43	ε Leonis	HC	36·3	39·4	42·5	45·5	51·6	57·7	0·7	3·7	6·8	9. 37. 51·55		52·04	19·32	27·28		9. 38. 19·28	— 1·45
	44	8 Sextantis	HC	15·6	18·4	21·2	23·9	29·6	35·1	..	..	..	9. 45. 29·52		29·70				9. 45. 26·95	— 1·59

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S. P.

Reading of Transit-Micrometer, $31^r{\cdot}200$.
Correction for passage of Semidiameter, No. 16, $+0^s{\cdot}40$.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
March 20 and 21. The azimuthal error used is the mean of the determinations ($-4''{\cdot}63$ and $-2''{\cdot}76$) made on March 16 and 25.
March 24 and 25. The azimuthal error used is that determined on March 25 by tabular places of ε Virginis and Polaris S.P., allowing $0^s{\cdot}01$ for clock-rate.

13. Faint.
36. Cloudy.
15. Observed over the wires illuminated.
38. Very faint.
20. A close double star; observed as one mass.
41. Double; the second star, which was the brighter, was observed.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and (Losing Rate).	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
Mar. 25	1	Bradley 1408	HC	..	12·3	15·3	18·2	24·0	29·9	32·9	35·8	..	10. 1. 24·02	+0·97	24·45			26·71	10. 1. 51·71	— 1·52
	2	23 Leonis Minoris	HC	58·4	1·8	5·0	8·1	14·6	20·9	24·1	27·3	30·4	10. 8. 14·48	(+7·68)	15·03			[1·32]	10. 8. 42·30	— 1·86
	3	μ Ursæ Majoris..	HC	..	..	46·2	50·0	57·4	5·0	8·6	..	..	10. 13. 57·40	[−2·76]	58·14				10. 14. 25·41	— 1·63
	4	3 Leonis Minoris.	HC	..	30·9	34·2	37·8	44·7	51·8	55·3	58·8	..	10. 19. 44·74		45·39				10. 20. 12·67	— 1·60
	5	33 Leonis Minoris	HC	35·2	38·5	41·8	45·1	51·6	58·3	1·6	4·9	8·2	10. 23. 51·65		52·25				10. 24. 19·53	— 1·59
	6	35 Leonis Minoris	HC	59·4	3·0	6·4	9·8	16·7	23·7	27·1	30·5	34·0	10. 28. 16·69		17·34				10. 28. 44·63	— 1·62
	7	l Leonis	HC	35·8	38·7	41·4	44·2	49·8	55·6	58·4	1·2	4·0	10. 41. 49·87		50·22	17·47	27·25		10. 42. 17·52	— 1·62
	8	48 Leonis Minoris	HC	46·9	50·0	53·1	56·2	2·2	8·6	11·6	14·7	17·6	10. 47. 2·29		2·79				10. 47. 30·09	— 1·61
	9	49 Ursæ Majoris.	HC	38·3	42·1	45·6	49·2	56·3	3·7	7·3	10·8	14·4	10. 52. 56·37		57·06				10. 53. 24·37	— 1·67
	10	51 Ursæ Majoris.	HC	..	..	..	..	40·9	47·9	51·5	55·0	58·6	10. 56. 40·79		41·47				10. 57. 8·78	— 1·67
	11	Piazzi X. 228 ...	HC	..	..	..	..	..	0·8	4·3	7·8	11·4	10. 56. 53·58		54·26				10. 57. 21·57	— 1·67
	12	δ Leonis	HC	21·0	24·0	26·9	29·8	35·7	41·8	44·7	47·6	50·6	11. 6. 35·76		36·21	3·55	27·34		11. 7. 3·53	— 1·63
	13	σ Leonis.....	HC	36·7	39·6	42·4	45·3	50·8	56·4	59·1	..	..	11. 13. 50·74		51·05				11. 14. 18·38	— 1·71
	14	Brad. 3147 S.P. (E&E)	HC	30·0	16·0	2·5	48·5	..	..	..	..	..	11. 27. 21·74		12·11				....	
	15	60 Ursæ Majoris.	HC	..	..	..	50·0	58·0	6·3	..	..	18·4	11. 30. 58·01		58·86				11. 31. 26·20	— 1·78
	16	β Leonis.....	HC	36·0	39·0	41·8	44·7	..	..	..	..	..	11. 41. 50·37		50·76	18·11	27·35		11. 42. 18·11	— 1·67
	17	1 Comæ	HC	14·3	17·3	20·3	23·3	29·2	35·2	38·2	41·3	44·3	11. 54. 29·23		29·69				11. 54. 57·05	— 1·67
	18	ο Virginis	HC	..	..	..	..	0·1	5·8	8·5	11·4	..	11. 58. 0·11		0·45				11. 58. 27·82	— 1·73
	19	68 Ursæ Majoris .	HC	..	..	..	29·5	39·7	50·2	55·3	0·4	..	12. 4. 39·70		40·83				12. 5. 8·20	— 1·98
	20	7 Comæ	HC	55·2	58·3	1·4	4·4	10·4	16·6	19·6	22·6	25·6	12. 9. 10·43		10·92				12. 9. 38·30	— 1·67
	21	9 Comæ	HC	7·6	10·9	..	17·2	23·4	29·7	33·0	..	39·4	12. 12. 23·45		23·99				12. 12. 51·37	— 1·66
	22	5 Canum Venat..	HC	43·9	48·5	53·0	57·6	6·5	..	..	..	..	12. 17. 6·52		7·49				12. 17. 34·87	— 1·84
	23	74 Ursæ Majoris.	HC	..	..	1·2	6·5	17·2	28·1	33·6	..	..	12. 23. 17·26		18·45				12. 23. 45·84	— 1·99
	24	Bradley 1693....	HC	43·5	46·4	49·2	..	57·6	..	6·0	8·9	11·6	12. 29. 57·57		57·91				12. 30. 25·31	— 1·73
	25	ρ Virginis.....	HC	29·0	32·0	34·7	37·5	43·1	48·8	51·7	54·4	57·3	12. 34. 43·14		43·49				12. 35. 10·89	— 1·72
	26	12 Can. Ven. (1st Star)	HC	2·6	6·2	9·8	13·4	20·4	27·6	31·2	34·8	38·2	12. 49. 20·43		21·11				12. 49. 48·52	— 1·65
	27	12 Can. Ven. (2nd Star)	HC	3·9	7·5	11·1	14·6	21·6	28·9	32·4	36·0	39·6	12. 49. 21·70		22·38				12. 49. 49·79	— 1·65
	28	ε Virginis.....	HC	53·1	56·1	58·8	1·8	7·4	13·0	15·8	18·7	21·4	12. 55. 7·31		7·67	35·05	27·38		12. 55. 35·09	— 1·69
	29	Polaris S.P. (E&E)	HC	21·0	15·0	8·0	1·5	51·0	..	..	..	..	13. 9. 49·83		26·26	53·66	27·40		....	
	30	ζ Ophiuchi.....	C	..	11·8	15·4	18·4	23·9	29·6	32·4	35·2	..	16. 29. 23·77		23·93	51·46	27·53	26·58	....	
	31	ζ Herculis	C	33·0	36·4	39·6	42·9	49·2	55·8	59·1	2·4	5·6	16. 35. 49·29		49·88	17·33	27·45		....	
	32	☽ 2 L.....	C	..	..	..	28·1	33·7	40·0	42·9	45·8	48·8	16. 44. 33·89		33·97				16. 43. 57·25	
Mar. 26	33	☉ 2 L.	P	6·6	9·7	12·4	15·4	20·9	26·3	29·2	32·1	34·8	0. 20. 20·80	[−2·80]	21·07			27·87	0. 19. 44·54	
	34	η Aurigæ	P	24·7	28·5	32·1	35·8	43·0	50·4	54·1	57·8	1·4	4. 56. 43·05		43·78			[0·98]	4. 57. 11·85	— 0·28
	35	Capella.....	P	3·6	7·7	11·6	15·6	23·4	31·6	35·5	39·6	43·5	5. 6. 23·53		24·33				5. 6. 52·41	— 0·36
	36	Rigel	P	26·7	29·6	32·4	35·2	40·8	46·2	49·2	51·9	54·7	5. 7. 40·72		40·89	8·89	28·00		5. 8. 8·97	— 0·11
	37	β Tauri.....	P	9·1	12·4	15·6	18·6	..	..	34·2	37·5	40·6	5. 17. 24·86		25·39	53·54	28·15		5. 17. 53·47	— 0·35
	38	α Leporis	P	9·2	12·2	15·2	18·1	23·9	29·8	32·6	35·6	38·3	5. 26. 23·85		23·93				5. 26. 52·02	— 0·13
	39	ε Orionis	P	..	..	..	54·4	59·8	5·4	8·0	10·9	..	5. 28. 59·79		0·02	28·15	28·13		5. 29. 28·11	— 0·27
	40	Mars 1 L.....	P	8·0	11·0	13·9	17·0	23·1	29·3	32·3	35·4	38·3	7. 18. 23·12		23·61				7. 18. 52·16	
	41	σ^1 Canceri	P	..	..	..	..	..	..	53·7	56·8	0·1	8. 36. 43·90		44·47				8. 37. 12·69	— 1·26
	42	b Ursæ Majoris ..	P	..	..	37·9	43·9	55·7	7·7	13·7	..	..	8. 41. 55·72		57·04				8. 42. 25·26	— 1·73
	43	ρ Ursæ Majoris ..	P	..	..	40·4	47·8	2·8	17·6	25·2	..	..	8. 50. 2·68		4·32				8. 50. 32·55	— 2·03
	44	α Canceri.....	P	..	..	..	..	45·4	51·0	53·8	56·7	59·6	8. 50. 45·34		45·70	13·92	28·22		8. 51. 13·93	— 1·28
	45	f^1 Cygni S.P. ...	P	29·7	33·8	37·9	42·1	50·2	58·1	2·0	6·1	10·4	8. 54. 50·08		49·61				20. 55. 17·84	+ 0·31
	46	κ Canceri	P	50·9	54·0	56·7	59·5	5·2	10·8	13·7	16·4	19·3	9. 0. 5·14		5·49	33·81	28·32		9. 0. 33·73	— 1·32
	47	e Mali	P	36·0	39·1	42·1	45·4	51·7	58·1	1·3	4·4	7·7	9. 3. 51·73		51·68				9. 4. 19·92	— 1·63
	48	20 Ursæ Majoris.	P	..	..	32·9	38·4	49·4	0·6	6·4	..	..	9. 9. 49·48		50·71				9. 10. 18·95	— 1·78

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, $31^r·200$.
Corrections for passage of Semidiameter, Nos. 32, 33, and 40, $-64^s·22$: $-64^s·41$: and $+0^s·38$.
March 26 and 27. The azimuthal error by Polaris S.P. and Polaris, allowing $0^s·58$ for clock-rate and change of R.A.

1, 13, 15, 18. Cloudy.
32. Cloudy. No observation of N.P.D. was made.
7. Faint.
37. Very cloudy.
12, 14. Very tremulous.
40. Very tremulous and faint.
16. Very tremulous ; very cloudy.
29. Excessively tremulous.
45. Very tremulous.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Mar. 30	1	d^1 Cancri	C	58·2	1·2	4·1	7·1	12·7	18·6	21·6	24·4	27·4	8. 15. 12·78	+0·97	13·23	45·80	32·57	32·04	8. 15. 45·73	— 1·07
	2	υ Leonis	C	23·5	26·2	28·9	31·8	37·2	42·8	45·6	48·4	51·0	11. 29. 37·23	+ 9·00	37·45	10·10	32·65	[1·33]	11. 30. 10·13	— 1·78
	3	γ Cephei S.P.	C	21·3	33·5	45·4	57·7	..	..	..	..	..	11. 33. 22·28	[−4·29]	19·35				23. 33. 52·03	+ 2·33
	4	Groombridge 1830	C	29·0	32·4	36·0	39·6	46·5	53·8	57·3	c·8	4·3	11. 44. 46·50		47·35				11. 45. 20·04	— 1·69
	5	W.B. XI. 890	C	52·4	55·3	58·2	1·0	6·7	12·3	15·4	18·1	21·2	11. 52. 6·70		6·75				11. 52. 39·45	— 2·01
	6	o Virginis	C	40·7	43·5	46·4	49·1	54·6	0·4	3·2	6·0	8·8	11. 57. 54·71		55·05				11. 58. 27·75	— 1·74
	7	68 Ursæ Majoris	C	8·4	13·5	18·7	23·9	34·2	44·8	49·9	55·0	0·1	12. 4. 34·22		35·53				12. 5. 8·24	— 1·98
	8	W.B. XII. 136	C	10·1	12·9	15·6	18·4	24·0	29·6	32·4	35·1	37·9	12. 9. 23·97		24·17				12. 9. 56·88	— 1·85
	9	9 Comæ	C	2·4	5·5	8·6	11·7	18·0	24·4	27·6	30·8	33·9	12. 12. 18·07		18·65				12. 12. 51·37	— 1·68
	10	74 Ursæ Majoris	C	44·8	50·4	55·7	1·0	11·9	..	..	..	..	12. 23. 11·81		13·19				12. 23. 45·91	— 2·01
	11	β Corvi	C	38·9	41·9	44·9	47·8	53·8	59·8	2·8	5·9	8·7	12. 26. 53·81		53·76	26·45	32·69		12. 27. 26·49	— 2·20
	12	ρ Virginis	C	23·8	26·6	29·4	32·2	37·9	43·6	46·3	49·2	51·9	12. 34. 37·85		38·20				12. 35. 10·93	— 1·75
	13	ε Virginis	C	47·9	50·8	53·5	56·4	2·0	7·6	10·5	13·2	16·0	12. 55. 1·96		2·32	35·09	32·77		12. 55. 35·08	— 1·73
	14	Polaris S.P. (E&E)	C	20·5	15·0	8·0	1·0	..	..	..	..	..	13. 9. 49·16		20·17	52·94	32·77		....	
	15	72 Ophiuchi	D	15·8	18·8	21·4	24·4	29·9	35·6	38·4	41·2	43·8	18. 0. 29·89		30·21	3·42	33·21	32·19†	....	
	16	α Lyræ	D	35·0	38·6	42·2	45·6	52·7	59·9	3·4	6·9	10·3	18. 31. 52·71		53·47	26·67	33·20		....	
Mar. 31	17	72 Ophiuchi	JC	14·8	17·2	20·1	22·8	28·4	34·0	36·9	39·8	42·6	18. 0. 28·48	[−3·80]	28·84	3·45	34·61	33·63†	....	
	18	μ^1 Sagittarii	JC	0·0	3·0	6·0	9·0	14·9	20·8	23·8	26·8	29·7	18. 5. 14·86		14·86	49·47	34·61	[1·31]	....	
	19	Venus 2 L.	E	30·4	33·4	36·2	39·0	44·7	50·4	53·1	56·0	58·8	22. 0. 44·64	+0·85 (+8·31)	44·73				22. 1. 18·93	
April 1	20	⊙ 1 L.	E	44·5	47·2	45·1	48·0	53·4	59·0	1·8	4·4	7·2	0. 39. 53·37		58·13			34·94	0. 41. 33·11	
	21	⊙ 2 L.	E	..	51·4	54·0	56·8	2·4	7·8	10·8	13·6	..	0. 42. 2·36						....	
	22	Polaris .... (E&E)	E	..	..	..	..	51·0	39·0	34·0	25·0	..	1. 8. 51·04		17·70	52·65	34·95			
April 2	23	6 Ursæ Majoris	C	..	..	15·3	22·1	35·0	48·2	54·9	..	..	8. 44. 35·03	(+7·22)	36·39			36·02	8. 45. 12·81	— 1·57
	24	α Cancri	C	22·9	25·7	28·5	31·4	37·0	42·8	45·6	48·4	51·3	8. 50. 37·03	[−2·66]	37·37	13·82	36·45	[1·09]	8. 51. 13·79	— 1·18
	25	σ^2 Ursæ Majoris	C	26·3	33·7	41·0	48·2	2·5	..	..	..	..	8. 58. 2·65		4·17				8. 58. 40·60	— 1·75
	26	e Mali	C	27·4	30·6	33·9	37·0	43·5	49·0	53·0	56·0	59·1	9. 3. 43·35		43·30				9. 4. 19·73	— 1·51
	27	83 Cancri	C	43·2	46·1	49·0	51·9	57·6	3·5	6·4	9·4	12·2	9. 10. 57·67		58·06	34·52	36·46		9. 11. 34·50	— 1·25
	28	Piazzi IX. 37	C	37·5	57·6	17·3	37·0	..	..	14·3	34·8	53·6	9. 17. 15·70		19·73				9. 17. 56·17	— 3·86
	29	Regulus	C	..	..	..	..	..	..	..	53·3	56·0	10. 0. 41·87		42·21	18·64	36·43		10. 1. 18·68	— 1·45
	30	35 Virginis	C	16·2	19·1	21·7	24·5	30·c	35·6	38·3	41·3	44·0	12. 40. 30·c5		30·31	6·89	36·58		12. 41. 6·91	— 1·81
	31	Brad. 1731 (1st Star)	C	11·5	39·4	6·4	33·6	..	..	..	..	..	12. 47. 27·11		32·60				12. 48. 9·20	— 6·81
	32	Brad. 1731 (2d Star)	C	19·5	48·0	14·6	41·5	..	..	..	..	..	12. 47. 35·29		40·78				12. 48. 17·38	— 6·81
	33	19 Canum Venat.	C	38·9	42·7	46·3	50·0	57·3	4·8	8·4	12·1	15·8	13. 8. 57·32		58·01				13. 9. 34·63	— 1·86
	34	Polaris S.P. (E&E)	C	..	4·0	55·0	49·0	..	21·5	..	..	5·0	13. 9. 37·47		15·38	52·42	37·04		1. 9. 52·00	+24·94
	35	64 Virginis	C	38·4	41·2	44·0	46·7	52·3	57·9	0·7	3·4	6·1	13. 14. 52·27		52·54				13. 15. 29·16	— 1·80
	36	Spica	C	22·5	25·4	28·1	31·0	36·6	42·2	45·1	47·8	50·8	13. 17. 36·58		36·71	13·30	36·59		13. 18. 13·33	— 1·99
	37	Piazzi XIV. 150	C	41·1	44·4	47·6	51·3	58·0	4·7	7·8	11·3	14·6	14. 34. 57·82		57·72				14. 35. 34·40	— 2·41
	38	α^2 Libræ	C	42·4	45·3	48·1	51·0	56·7	2·4	5·4	8·2	11·0	14. 42. 56·69		56·78	33·39	36·61		14. 43. 33·47	— 1·93
	39	ξ^1 Libræ	C	..	..	..	..	..	40·7	43·4	46·1	49·1	14. 46. 34·92		35·05				14. 47. 11·74	— 1·86
	40	β Ursæ Minoris	C	..	..	..	..	..	52·4	2·5	13·3	23·5	14. 50. 31·10		33·30				14. 51. 9·99	— 2·56
	41	δ Boötis	C	16·0	19·3	22·7	26·0	32·6	39·3	42·7	45·9	49·3	15. 9. 32·61		33·18				15. 10. 9·89	— 1·47
	42	Piazzi XV. 54	C	45·4	48·2	51·1	54·0	59·5	5·3	8·0	10·9	13·7	15. 15. 59·53		59·65				15. 16. 36·36	— 1·77
	43	μ^1 Boötis	C	..	..	41·7	45·1	52·1	59·0	2·5	..	..	15. 18. 52·04		52·66				15. 19. 29·37	— 1·44
	44	Saturn 1 L.	C	31·4	34·2	37·2	40·1	45·7	51·6	54·4	57·3	0·2	15. 25. 45·76		46·52				15. 26. 23·24	
	45	Saturn 2 L.	C	32·8	35·7	38·6	41·4	47·2	52·9	55·7	58·6	1·4	15. 25. 47·11		28·05	4·88	36·83		15. 29. 4·77	— 1·42
	46	α Coronæ	C	12·0	15·2	18·2	21·3	27·6	33·9	37·0	40·0	43·2	15. 28. 27·57							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^r{\cdot}200$.

Correction for passage of Semidiameter, No. 19, $-0^s{\cdot}63$.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

March 31 and April 1. The azimuthal error by tabular places of μ^1 Sagittarii and Polaris, allowing $0^s{\cdot}37$ for clock-rate.

April 2 to 4. The azimuthal error by Polaris S.P. and Polaris on April 2 and 3, allowing $0^s{\cdot}53$ for clock-rate and change of R.A.

20, 21. The Sun had been shining on the instrument.

22. Very tremulous and faint.

28. Very faint; cloudy.

29. Very cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
April 3	1	⊙ 1 L.....	E	54·4	57·4	0·2	2·9	8·5	13·8	16·9	19·6	22·2	0. 47. 8·40	+0·85	13·13			37·39	0. 48. 50·55	
	2	⊙ 2 L.....	E	3·5	6·2	9·0	11·8	17·4	23·0	25·8	28·5	31·3	0. 49. 17·33	(+ 7·22)				[0·99]		
	3	Polaris ....(E&E)	E	..	..	..	8·0	54·0	40·0	33·0	27·0	19·0	1. 8. 52·43	[− 2·66]	14·84	52·37	37·53		1. 9. 52·28	+24·99
	4	34 Sextantis	E	55·2	57·9	0·8	..	..	..	17·5	20·2	23·0	10. 35. 9·07		9·33	46·92	37·59		....	
	5	*l* Leonis	E	24·8	27·7	30·5	33·3	..	44·8	47·8	50·6	53·5	10. 41. 39·10		39·42	17·42	38·00		....	
	6	Lalande(F)1729(E&E)	E	..	..	..	..	40·0	55·5	31·5	8·0	..	10. 55. 39·72		59·15				10. 56. 36·99	−21·47
	7	δ Leonis	E	..	13·4	16·4	19·2	25·2	31·2	34·2	37·1	..	11. 6. 25·20		25·61	3·52	37·91		....	
	8	σ Leonis.....	E	..	29·1	31·8	34·7	40·2	45·7	48·5	51·3	..	11. 13. 40·15		40·43				11. 14. 18·28	− 1·68
	9	λ Draconis.....	E	..	..	27·3	35·6	51·3	7·6	16·0	..	..	11. 22. 51·47		53·16				11. 23. 31·02	− 2·51
	10	Brad. 3147 S.P.(E&E)	E	..	..	51·5	38·0	12·0	43·0	30·0	..	..	11. 27. 11·40		2·45				23. 27. 40·31	+ 9·81
April 4	11	o Leonis	K	11·4	14·3	17·0	19·8	25·4	31·1	33·9	36·7	39·4	9. 33. 25·41		25·73	4·32	38·59	38·26	....	
	12	ε Leonis	K	24·8	27·8	31·0	34·0	40·0	46·1	49·2	52·3	55·2	9. 37. 40·02		40·47	19·20	38·73	[0·91]	....	
	13	Regulus	K	25·6	28·4	31·2	34·0	39·6	45·4	48·4	51·0	53·9	10. 0. 39·69		40·03	18·61	38·58		....	
	14	22 Leonis Minoris	K	33·7	36·9	40·2	43·4	50·0	56·4	59·8	3·1	6·4	10. 6. 49·95		50·49				10. 7. 29·13	− 1·44
	15	23 Leonis Minoris	K	..	..	53·5	56·8	3·1	9·4	12·7	..	..	10. 8. 3·07		3·59				10. 8. 42·24	− 1·71
	16	28 Leonis Minoris	K	34·8	38·2	41·5	45·0	51·6	58·5	1·7	5·2	8·5	10. 15. 51·64		52·21				10. 16. 30·86	− 1·47
	17	33 Leonis Minoris	K	23·6	..	30·4	33·6	40·2	46·8	50·2	..	..	10. 23. 40·19		40·74				10. 24. 19·39	− 1·49
April 5	18	⊙ 1 L.....	D	10·2	13·0	15·8	18·7	24·1	29·9	32·6	35·4	38·0	0. 54. 24·16	[− 1·51]	29·00			39·10	0. 56. 8·13	
	19	⊙ 2 L.....	D	19·3	22·0	24·9	27·6	33·2	38·8	41·5	44·4	47·2	0. 56. 33·18					[0·86]		
	20	Polaris ....(E&E)	D	27·0	24·0	14·0	9·0	..	..	..	..	..	1. 8. 53·69		14·21	52·33	38·12		....	
	21	γ Cancri	D	41·4	44·4	47·4	50·4	56·4	2·3	5·3	8·3	11·2	8. 34. 56·31		56·78	36·18	39·40		8. 35. 36·19	− 1·05
	22	ε Hydræ	D	51·2	54·0	56·8	59·6	5·2	10·8	13·5	16·4	19·1	8. 39. 5·15		5·49	44·95	39·46		8. 39. 44·90	− 1·09
	23	51 Cancri.....	D	26·0	29·2	32·5	35·9	42·4	49·0	52·3	55·6	58·8	8. 43. 42·38		42·96				8. 44. 22·37	− 1·11
	24	75 Cancri.....	D	3·3	6·4	9·5	12·6	18·8	25·0	28·1	31·2	34·3	9. 0. 18·77		19·28				9. 0. 58·70	− 1·17
	25	Bradley 1300....	D	..	..	15·0	18·4	25·1	32·0	35·4	38·6	42·0	9. 6. 25·11		25·72				9. 7. 5·14	− 1·21
	26	83 Cancri.....	D	40·0	43·1	46·0	48·0	54·6	0·4	3·4	6·3	9·2	9. 10. 54·61		55·04	34·48	39·44		9. 11. 34·47	− 1·21
	27	α Lyncis.....	D	1·0	4·5	7·9	11·2	17·9	24·7	28·0	31·5	34·9	9. 12. 17·91		18·52				9. 12. 57·95	− 1·23
	28	7 Leonis Minoris.	D	45·0	48·5	51·8	55·1	1·8	8·6	11·9	15·1	18·5	9. 22. 1·77		2·36				9. 22. 41·80	− 1·27
	29	9 Leonis Minoris.	D	24·0	27·5	31·0	34·4	41·3	48·3	51·7	55·3	58·6	9. 24. 41·31		41·94				9. 25. 21·38	− 1·29
	30	Piazzi IX. 124 ..	D	54·1	57·3	0·4	3·8	10·2	16·7	20·0	23·4	26·6	9. 28. 10·24		10·81				9. 28. 50·25	− 1·29
	31	Piazzi IX. 135 ..	D	..	..	..	•..	48·0	54·1	57·0	0·0	2·9	9. 30. 48·08		48·54				9. 31. 27·98	− 1·29
	32	*f* Leonis.....	D	50·3	53·5	56·8	59·9	6·3	12·9	16·0	19·2	22·3	9. 35. 6·32		6·88				9. 35. 46·32	− 1·31
	33	*g* Leonis.....	D	25·9	29·0	31·9	35·1	41·1	47·2	50·2	53·3	56·3	9. 43. 41·08		41·57				9. 44. 21·02	− 1·34
	34	π Leonis.....	D	18·6	21·4	24·2	27·0	32·6	38·1	41·0	43·7	46·5	9. 52. 32·54		32·89	12·39	39·50		9. 53. 12·34	− 1·40
	35	Piazzi IX. 230 ..	D	30·2	33·2	36·2	39·2	45·1	51·2	54·1	57·1	0·2	9. 54. 45·14		45·61				9. 55. 25·07	− 1·38
	36	Regulus	D	24·4	27·5	30·2	33·0	38·7	54·5	47·4	50·1	53·0	10. 0. 38·72		39·11	18·60	39·49		10. 1. 18·57	− 1·41
	37	Piazzi IX. 254 ..	D	0·2	3·9	7·6	11·4	18·6	25·9	29·7	33·3	37·0	10. 2. 18·58		19·28				10. 2. 58·74	− 1·44
	38	23 Leonis Minoris	D	46·1	49·4	52·6	55·9	2·1	8·6	11·8	15·0	18·0	10. 8. 2·14		2·69				10. 8. 42·15	− 1·69
	39	27 Leonis Minoris	D	..	34·3	37·7	41·0	47·6	54·4	57·6	1·0	..	10. 14. 47·62		48·22				10. 15. 27·69	− 1·45
	40	28 Leonis Minoris	D	..	..	..	44·1	50·8	57·5	0·9	4·1	7·5	10. 15. 50·74		51·33				10. 16. 30·80	− 1·45
	41	Rad. 5776 S.P. (E&E)	D	25·0	25·0	26·0	26·5	31·0	..	..	..	..	10. 28. 30·31		19·45	57·97	38·52		....	
	42	Juno.....	D	..	..	..	..	58·2	3·8	6·6	9·4	12·0	10. 35. 58·14		58·49				10. 36. 37·97	
	43	Victoria	D	7·7	10·4	13·2	15·8	21·6	27·3	29·9	32·7	35·4	11. 36. 21·53		21·74				11. 37. 1·26	
	44	Eunomia	D	45·3	48·3	51·4	54·1	0·0	5·8	8·6	11·7	14·4	11. 49. 59·93		0·08				11. 50. 39·60	
	45	ε Corvi.....	D	25·0	28·1	31·1	34·0	40·0	46·0	48·9	51·9	54·9	12. 2. 39·96		40·07	19·47	39·40		12. 3. 19·60	− 2·16
April 6	46	υ Leonis	JC	15·7	18·4	21·3	24·0	29·5	35·0	37·9	40·7	43·4	11. 29. 29·51		29·79	10·08	40·29	39·84	....	
	47	β Leonis.....	JC	..	26·0	28·9	31·7	37·4	43·2	46·0	49·0	..	11. 41. 37·42		37·83	18·10	40·27	[0·90]	....	

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·200.
April 5 to 7. The azimuthal error by tabular places of Polaris and Radcliffe 5776 S.P. on April 5, allowing 0s·39 for clock-rate.

3, 4. Exceedingly faint. 5. Very faint. 11. Cloudy. 12, 17. Very cloudy. 20. Very faint; cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	s	s	s	s	s	h m s	s
April 11	1	γ^1 Leonis	E	..	40·7	43·7	46·6	..	..	1·4	4·4	7·4	10. 11. 52·51	+0·93	53·06	39·56	46·50	45·87† [1·52]	....	
	2	Victoria	D	24·3	27·2	30·2	33·0	38·5	44·1	47·0	49·7	52·6	11. 31. 38·48	(+9·21)	38·72				11. 32. 25·15	
	3	β Leonis	D	16·9	19·7	22·5	25·5	31·1	36·9	39·8	42·6	45·4	11. 41. 31·13	[−2·34]	31·61	18·08	46·47	45·70	11. 42. 18·03	− 1·64
	4	Groom. 1850(E&E)	D	..	..	..	..	..	41·0	24·5	8·0	49·5	11. 57. 14·10		24·43	10·75	46·32		....	
	5	Bradley 1650	D	..	..	..	..	..	26·9	38·4	49·7	1·1	12. 12. 4·15		7·00				12. 12. 53·47	− 1·14
	6	d^1 Virginis	D	13·7	16·5	19·4	22·2	27·7	33·4	36·1	38·9	41·6	12. 34. 27·69		28·09				12. 35. 14·59	− 1·80
	7	d^2 Virginis	D	54·9	57·7	0·5	3·3	8·8	14·4	17·1	20·0	22·6	12. 38. 8·78		9·19				12. 38. 55·69	− 1·80
	8	29 Comæ	D	15·0	17·7	20·4	23·4	29·3	34·9	37·8	40·5	43·4	12. 41. 29·12		29·60				12. 42. 16·10	− 1·76
	9	41 Virginis	D	9·9	12·8	15·6	18·4	24·0	29·9	32·7	35·6	38·4	12. 46. 24·12		24·58				12. 47. 11·09	− 1·78
	10	ϵ Virginis	D	34·1	37·0	39·8	42·6	48·1	53·9	56·7	59·6	2·2	12. 54. 48·19		48·64	35·15	46·51		12. 55. 35·16	− 1·79
	11	Polaris S.P. (E&E)	D	6·0	59·0	53·0	46·0	..	..	10·0	..	..	13. 9. 33·30		7·39	53·08	45·69		....	
	12	Spica	D	12·4	15·4	18·1	21·0	26·5	32·2	35·0	37·8	40·5	13. 17. 26·51		26·73	13·36	46·63		13. 18. 13·27	− 2·05
April 12	13	Procyon	JC	19·0	21·8	24·6	27·4	32·9	38·4	41·1	44·0	46·8	7. 31. 32·86	[−2·87]	33·22	20·97	47·75	47·26† [1·40]	....	
	14	Pollux	JC	7·1	10·3	13·4	16·5	22·8	29·1	32·3	35·4	38·6	7. 36. 22·81		23·44	11·10	47·66		....	
	15	d^1 Canceri	C	42·8	45·7	48·7	51·5	57·3	3·2	6·2	9·1	12·0	8. 14. 57·36		57·87	45·57	47·70	47·22	8. 15. 45·57	− 0·84
	16	Piazzi VIII. 46	C	..	..	0·7	8·0	22·6	37·4	44·7	..	..	8. 16. 22·60		24·48				8. 17. 12·18	− 0·99
	17	υ^3 Canceri	C	35·8	39·0	42·0	45·0	51·0	57·2	0·2	3·2	6·2	8. 22. 51·04		51·62				8. 23. 39·33	− 0·88
	18	η Canceri	C	58·7	1·6	4·7	7·6	13·4	19·4	22·4	25·4	28·3	8. 24. 13·47		14·01	1·73	47·72		8. 25. 1·72	− 0·89
	19	3 Ursæ Majoris	C	..	..	..	..	..	46·3	52·9	59·5	6·2	8. 26. 32·81		34·52				8. 27. 22·23	− 1·04
	20	☽ 1 L.	C	44·5	47·5	50·4	53·2	59·0	5·2	8·1	11·0	13·9	8. 33. 59·17		59·62				8. 35. 56·06	
	21	51 Canceri	C	17·4	20·8	24·1	27·3	33·9	40·6	43·8	47·1	50·3	8. 43. 33·88		34·53				8. 44. 22·31	− 0·98
	22	α Canceri	C	11·4	14·2	17·0	19·8	25·4	31·2	34·0	36·8	39·7	8. 50. 25·47		25·91	13·66	47·75		8. 51. 13·65	− 1·02
	23	66 Canceri	C	10·6	13·9	17·2	20·5	27·0	33·6	37·0	40·1	43·5	8. 52. 27·00		27·70				8. 53. 15·44	− 1·02
	24	κ Canceri	C	31·3	34·2	36·9	39·8	45·3	51·1	53·9	56·8	59·4	8. 59. 45·38		45·80	33·56	47·76		9. 0. 33·54	− 1·07
	25	α Lyncis	C	52·4	56·0	59·1	2·6	9·4	16·2	19·5	23·0	26·2	9. 12. 9·33		10·07				9. 12. 57·83	− 1·10
	26	Piazzi IX. 124	C	45·5	48·8	52·0	55·2	1·7	8·3	11·5	14·7	18·0	9. 28. 1·72		2·40				9. 28. 50·17	− 1·17
	27	12 Leonis	C	..	..	37·3	40·4	46·5	52·7	56·0	..	..	9. 30. 46·55		47·16				9. 31. 34·93	− 1·18
	28	13 Leonis	C	56·5	59·7	2·7	5·8	11·9	18·2	21·2	24·4	27·4	9. 33. 11·95		12·56				9. 34. 0·34	− 1·19
	29	16 Leonis Minoris	C	57·5	1·3	5·0	8·6	15·7	23·0	26·6	30·3	33·9	9. 41. 15·73		16·56				9. 42. 4·34	− 1·24
	30	Regulus	C	16·1	19·0	21·7	24·6	30·2	35·8	38·7	41·6	44·4	10. 0. 30·21		30·65	18·52	47·87		10. 1. 18·45	− 1·33
	31	Piazzi IX. 254	C	51·6	55·3	59·0	2·6	10·0	17·3	21·0	24·7	28·4	10. 2. 9·95		10·80				10. 2. 58·61	− 1·32
	32	23 Leonis Minoris	C	37·6	40·8	44·0	47·2	53·5	0·0	3·1	6·3	9·5	10. 7. 53·53		54·19				10. 8. 42·00	− 1·56
	33	15 Comæ	C	15·5	18·9	22·0	25·2	31·5	37·9	41·0	44·1	47·3	12. 19. 31·46		32·11				12. 20. 20·05	− 1·68
	34	22 Comæ	C	54·3	57·4	0·4	3·4	9·6	15·8	18·8	21·8	24·7	12. 26. 9·54		10·14				12. 26. 58·08	− 1·70
	35	25 Comæ	C	17·0	19·9	22·8	25·6	31·4	37·2	40·2	43·0	46·0	12. 29. 31·43		31·94				12. 30. 19·89	− 1·73
	36	d^1 Virginis	C	..	..	..	20·4	26·2	31·9	34·5	37·5	40·1	12. 34. 26·16		26·54				12. 35. 14·49	− 1·80
	37	35 Virginis	C	..	..	..	..	18·7	24·2	27·1	29·9	..	12. 40. 18·70		19·05	6·92	47·87		12. 41. 7·01	− 1·84
	38	Polaris S.P. (E&E)	C	4·5	57·0	50·0	45·0	32·0	..	..	..	..	13. 9. 31·86		5·03	53·10	48·07		....	
April 14	39	α Canceri	C	..	..	..	17·4	23·0	28·7	31·5	34·2	37·1	8. 50. 22·96		23·40	13·63	50·23	49·77† [1·27]	....	
	40	α Hydræ	C	..	2·8	5·4	8·2	13·8	19·5	22·3	25·0	..	9. 20. 13·82		14·03	4·29	50·26		....	
	41	☽ 1 L.	JC	17·7	20·6	23·4	26·4	32·0	37·8	..	..	..	10. 25. 32·02		32·40			49·69	10. 27. 28·39	
	42	34 Sextantis	JC	..	45·4	47·8	50·6	56·0	1·7	4·3	7·2	..	10. 34. 56·10		56·45	46·82	50·37		....	
	43	l Leonis	JC	12·3	..	..	20·9	26·5	..	35·2	37·9	40·6	10. 41. 26·53		26·95	17·33	50·38		....	
	44	d Leonis	JC	38·5	41·3	44·1	46·8	52·2	57·9	0·7	3·4	6·2	10. 52. 52·32		52·67	43·00	50·33		....	
	45	χ Leonis	JC	..	9·0	11·8	14·6	20·1	25·7	28·5	31·3	..	10. 57. 20·10	+0·61 (+8·34) [−0·47]	20·49	10·84	50·35		....	
	46	Polaris (E&E)	D	..	11·0	2·0	58·0	41·0	30·0	..	..	..	1. 8. 41·47		2·07	53·19	51·12		....	

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^r{\cdot}200$.

Corrections for passage of Semidiameter, Nos. 20 and 41, $+68^s{\cdot}70$: and $+65^s{\cdot}74$.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

April 12 to 14. The azimuthal error by tabular places of Regulus and Polaris S.P. on April 12, allowing $0^s{\cdot}20$ for clock-rate.

6, 7, 17. Faint. 8, 38. Very faint; cloudy. 9, 11. Cloudy. 20, 41. Corrections to R.A. on true Meridian, $+0^s{\cdot}02$ and $+0^s{\cdot}01$.

36, 41, 42, 43, 45. Very cloudy. 46. Very tremulous.

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MONTH and DAY.	No. for Reference	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
April 15	1	α Hydræ	D	58·4	1·4	..	..	..	18·0	20·8	23·6	26·4	9. 20. 12·41	+0·61	12·71	4·28	51·57	51·09	....	
	2	ξ Leonis	D	41·5	44·3	47·2	49·9	55·5	..	..	..	9·7	9. 23. 55·57	(+8·34)	56·03	47·55	51·52	[1·34]	....	
	3	π Leonis	E	6·1	8·9	..	14·4	20·0	25·7	28·5	31·3	..	9. 52. 20·04	[−0·47]	20·48	12·27	51·79	51·27†	....	
	4	Piazzi IX. 230	D	17·9	20·8	23·8	26·7	32·8	38·9	41·8	44·8	47·7	9. 54. 32·77		33·33			51·09	9. 55. 24·97	− 1·24
	5	Regulus	E	11·9	14·8	17·7	20·6	26·2	31·9	34·7	37·5	40·4	10. 0. 26·16		26·63	18·48	51·85	51·27†	....	
	6	Piazzi IX. 254	D	47·7	51·5	55·1	58·7	6·0	13·4	17·1	20·8	24·4	10. 2. 6·04		6·82			51·09	10. 2. 58·47	− 1·27
	7	23 Leonis Minoris	D	33·8	37·0	40·0	43·3	49·7	56·0	59·2	2·5	5·6	10. 7. 49·64		50·29				10. 8. 41·95	− 1·50
	8	γ¹ Leonis	D	32·5	35·4	38·3	41·2	47·2	53·1	56·1	59·0	2·0	10. 11. 47·17		47·71	39·51	51·80		....	
	9	Bradley 1433	D	5·8	9·6	13·5	17·0	24·3	31·7	35·6	39·3	43·0	10. 13. 24·36		25·15				10. 14. 16·81	− 1·32
	10	49 Leonis	D	58·6	1·6	4·2	7·1	12·6	18·3	21·0	23·8	26·7	10. 27. 12·63		13·07				10. 28. 4·74	− 1·42
April 16	11	☽ 1 L.	C	..	..	..	..	..	..	36·8	39·5	42·4	12. 9. 28·20	[−2·67]	28·44			52·33	12. 11. 25·26	
	12	ε Virginis	C	27·4	30·6	33·4	36·2	41·8	47·5	50·3	53·1	55·9	12. 54. 41·77		42·13	35·16	53·03	[1·30]	....	
	13	θ Virginis	C	58·7	1·6	4·4	7·0	12·8	18·3	21·1	23·9	26·5	13. 2. 12·67		12·87	5·90	53·03		....	
	14	Polaris S.P. (E&E)	C	..	..	42·0	36·0	25·5	8·5	3·0	..	..	13. 9. 24·20		0·41	53·37	52·96		....	
	15	Spica	JC	6·2	9·0	12·0	14·7	20·2	25·9	28·8	31·4	34·4	13. 17. 20·26		20·41	13·38	52·97	52·25†	....	
April 17	16	γ¹ Virginis	E	48·5	..	54·1	..	2·2	..	..	..	..	12. 34. 2·30	[−3·10]	2·53			54·00	12. 34. 57·11	− 1·87
	17	γ² Virginis	E	..	51·4	..	57·0	..	..	..	..	..	12. 34. 2·45		2·68			[1·10]	12. 34. 57·26	− 1·87
	18	35 Virginis	E	58·2	1·0	3·9	6·6	12·1	17·7	20·4	23·3	26·0	12. 40. 12·11		12·39	6·92	54·53		....	
	19	38 Virginis	E	16·0	18·8	21·5	24·2	29·8	35·3	38·1	40·9	43·6	12. 45. 29·77		29·97				12. 46. 24·55	− 1·92
	20	δ Virginis	E	47·4	50·2	53·0	55·7	1·3	6·9	9·6	12·3	15·2	12. 48. 1·26		1·53	56·16	54·63		....	
	21	ε Virginis	E	..	29·0	..	34·6	40·2	45·9	48·7	51·6	54·4	12. 54. 40·23		40·58	35·16	54·58		....	
	22	☽ 1 L.	E	39·0	41·8	44·8	..	53·3	..	1·9	4·8	7·5	12. 59. 53·27		53·45				13. 1. 51·47	
	23	Polaris S.P. (E&E)	E	..	..	..	34·0	23·5	..	3·0	..	..	13. 9. 23·48		58·93	53·56	54·63		....	
	24	Spica	E	4·6	7·4	10·2	13·0	18·7	24·3	27·1	29·8	32·8	13. 17. 18·62		18·75	13·38	54·63		....	
	25	h Virginis	E	51·2	54·0	56·8	59·7	5·2	10·9	13·6	16·4	19·3	13. 25. 5·20		5·34				13. 25. 59·96	− 2·07
April 18	26	χ Leonis	C	..	..	7·1	9·9	15·4	21·0	23·9	26·6	29·3	10. 57. 15·41	(+7·00)	15·66	10·81	55·15	54·62†	....	
																		[1·16]		
April 19	27	ζ Virginis	E	45·9	48·9	..	54·3	59·9	..	8·3	11·0	13·8	13. 26. 59·88		0·06	57·00	56·94	56·16†	....	
	28	Arcturus	D	25·6	28·7	31·7	34·5	40·4	46·2	49·2	52·2	55·2	14. 8. 40·39		40·74	37·54	56·80	[1·40]	....	
	29	ρ Boötis	D	54·2	57·4	0·7	3·8	10·2	16·8	20·0	23·1	26·3	14. 25. 10·25		10·74	7·67	56·93		....	
April 21	30	η Virginis	D	54·5	57·4	0·1	2·9	8·2	13·9	16·7	19·4	22·0	12. 12. 8·31	(+6·25)	8·45	7·91	59·46	58·89†	....	
	31	δ² Corvi	D	47·4	50·3	53·1	56·0	1·7	7·4	10·4	13·2	16·0	12. 22. 1·69		1·70	1·28	59·58	[1·22]	....	
	32	Polaris .... (E&E)	JC	..	3·0	54·0	47·5	34·0	..	12·5	..	..	1. 8. 32·63		55·23	55·00	59·77	59·82	....	
														+ 1·36				[1·29]		
April 22	33	Spica	JC	58·5	1·4	4·2	7·0	12·7	18·2	21·0	23·8	26·7	13. 17. 12·38	(+8·43)	12·92	13·40	60·48		....	
	34	ζ Virginis	JC	42·1	45·0	47·8	50·5	56·0	1·5	4·4	7·0	9·8	13. 26. 55·98	[−0·33]	56·41	57·01	60·60		....	
April 23	35	ε Leonis	K	1·2	4·3	7·3	10·3	16·3	22·2	25·4	28·5	31·6	9. 37. 16·31	(+7·76)	16·91	18·92	62·01	61·38	9. 38. 18·87	− 1·05
	36	16 Leonis Minoris	K	43·3	46·9	50·6	54·2	1·2	8·7	12·2	15·8	19·6	9. 41. 1·35		2·14			[1·44]	9. 42. 4·10	− 0·99
	37	π Leonis	K	55·7	58·6	1·4	4·2	9·8	15·4	18·2	21·0	23·9	9. 52. 9·77		10·23	12·16	61·93		9. 53. 12·20	− 1·17
	38	21 Leonis Minoris	K	..	..	..	..	..	39·9	43·4	46·7	50·1	9. 58. 33·04		33·76				9. 59. 35·74	− 1·11
	39	γ¹ Leonis	K	22·1	25·2	28·0	31·0	36·9	42·8	45·8	48·7	51·7	10. 11. 36·88		37·45	39·40	61·95		10. 12. 39·44	− 1·22
	40	Bradley 1433	K	55·3	59·2	2·9	6·4	13·9	21·5	25·1	28·9	32·5	10. 13. 13·93		14·74				10. 14. 16·73	− 1·17
	41	33 Leonis Minoris	K	0·0	3·3	6·6	9·8	16·4	23·2	26·4	29·8	33·0	10. 23. 16·46		17·15				10. 24. 19·15	− 1·22
	42	Bradley 1472	K	..	..	..	..	37·5	43·5	46·4	49·4	52·4	10. 27. 37·43		37·67				10. 28. 39·68	− 1·62
	43	40 Leonis Minoris	K	26·4	29·8	32·8	35·9	42·1	48·4	51·6	54·6	57·6	10. 34. 42·11		42·74				10. 35. 44·75	− 1·28

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31ʳ·200.
Corrections for passage of Semidiameter, Nos. 11 and 22, +63ˢ·82: and +63ˢ·41.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
April 15. The azimuthal error by tabular places of Polaris and α Hydræ on April 14 and 15, allowing 0ˢ·44 for clock-rate.
April 16. The azimuthal error by tabular places of Polaris S.P. and Spica, allowing 0ˢ·01 for clock-rate.
April 17 to 21, δ² Corvi. The azimuthal error by tabular places of Polaris S.P. and Spica on April 17, allowing 0ˢ·01 for clock-rate.
April 21 to 24. The azimuthal error by tabular places of Polaris and Spica on April 21 and 22, allowing 0ˢ·71 for clock-rate.

1, 2, 11, 15, 34. Very cloudy.
11, 22. Correction to R.A. on true Meridian, +0ˢ·01.
12. The 1st wire has also been used for the 6th wire of an Altazimuth observation, ☽ U.L., Face Left.
14. Very faint; cloudy.
23. Cloudy.
26. Observed over the wires illuminated.
33. Faint; cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R. A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R. A. of Center from the Observation.	Correction to Mean R. A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
April 30	1	ξ^1 Cephei S.P....	JC	13·1	19·2	25·4	31·8	44·6	57·1	3·4	9·9	16·0	9. 59. 44·57	−0·07	43·43			11·96	21. 59. 56·0c	− 0·63
	2	ξ^2 Cephei S.P....	JC	14·0	20·0	26·5	32·8	45·5	58·0	4·3	10·7	17·0	9. 59. 45·49	(+7·40)	44·35			[1·48]	21. 59. 56·92	− 0·63
	3	Regulus	JC	..	..	..	59·8	5·5	11·2	14·1	16·9	19·8	10. 1. 5·52	[−4·81]	5·71	18·27	12·56		10. 1. 18·29	− 1·08
	4	γ^1 Leonis	JC	11·6	14·6	17·6	20·4	26·2	32·3	35·2	38·3	41·2	10. 12. 26·35		26·62	39·30	12·68		10. 12. 39·21	− 1·12
	5	28 Leonis Minoris	JC	0·8	4·1	7·4	10·8	17·4	24·1	27·6	30·9	34·3	10. 16. 17·45		17·91				10. 16. 30·50	− 1·07
	6	33 Leonis Minoris	JC	49·5	52·9	56·2	59·5	6·0	12·6	15·9	19·3	22·5	10. 24. 6·00		6·44				10. 24. 19·04	− 1·11
	7	35 Leonis Minoris	JC	13·7	17·3	20·7	24·1	31·0	38·1	41·5	45·0	48·4	10. 28. 31·05		31·55				10. 28. 44·16	− 1·12
	8	36 Leonis Minoris	JC	50·3	53·9	57·4	0·7	7·2	14·0	17·4	20·8	24·0	10. 30. 7·27		7·73				10. 30. 20·34	− 1·14
	9	Piazzi X. 131....	JC	15·6	18 8	22·1	25·4	31·9	38·6	41·8	45·1	48·3	10. 34. 31·93		32·36				10. 34. 44·97	− 1·16
	10	42 Leonis Minoris	JC	..	..	6·4	9·5	16·0	22·5	25·7	29·0	32·2	10. 38. 15·99		16·40				10. 38. 29·01	− 1·18
	11	44 Leonis Minoris	JC	..	10·6	13·7	16·8	23·1	29·4	32·6	35·7	..	10. 42. 23·09		23·47				10. 42. 36·09	− 1·21
	12	47 Leonis Minoris	JC	5·5	9·0	12·2	15·6	22·2	29·1	32·4	35·8	39·2	10. 47. 22·31		22·77				10. 47. 35·39	− 1·21
	13	50 Leonis Minoris	JC	..	..	..	..	9·4	15·6	18·6	21·8	24·9	10. 49. 9·40		9·74				10. 49. 22·37	− 1·25
	14	49 Ursæ Majoris.	JC	..	..	..	3·6	10·8	18·0	21·7	25·3	29·0	10. 53. 10·82		11·37				10. 53. 24·00	− 1·23
	15	Lal.(F)1729(E&E)	JC	..	..	..	..	..	6·0	43·0	19·5	55·0	10. 55. 50·66		11·20	22·89	11·69		....	
	16	71 Leonis.....	JC	5·1	8·c	11·0	13·9	19·6	25·4	28·5	31·4	34·2	11. 15. 19·64		19·90				11. 15. 32·55	− 1·40
	17	τ Leonis.....	JC	40·7	43·5	46·2	49·1	54·5	0·1	2·9	5·7	8·4	11. 20. 54·54		54·64	7·33	12·69		11. 21. 7·30	− 1·53
	18	85 Leonis.....	JC	20·2	23·1	26·0	28·8	34·7	40·4	43·2	46·2	49·1	11. 22. 34·60		34·84				11. 22. 47·50	− 1·44
	19	Piazzi XI. 146 ..	JC	3·8	7·4	11·3	15·0	22·4	30·0	33·6	37·5	41·2	11. 36. 22·43		23·02				11. 36. 35·69	− 1·41
	20	Piazzi XI. 164 ..	JC	..	..	24·9	28·4	35·1	41·8	45·3	48·6	52·1	11. 42. 35·05		35·52				11. 42. 48·20	− 1·44
	21	* N.P.D. 76°. 59'..	JC	40·1	43·0	46·0	48·8	54·4	0·0	2·8	5·7	8·5	11. 43. 54·34		54·54				11. 44. 7·22	− 1·55
	22	2 Comæ (2d Star)	JC	..	..	..	..	16·3	22·4	25·4	28·4	31·4	11. 57. 16·38		16·67				11. 57. 29·37	− 1·54
	23	Bradley 1634....	JC	..	48·1	1·5	15·5	43·0	10·6	24·2	37·9	..	12. 5. 42·79		45·71				12. 5. 58·42	− 2·63
	24	10 Comæ	JC	41·7	44·9	48·1	51·2	57·6	3·9	7·1	10·3	13·3	12. 12. 57·53		57·91				12. 13. 10·62	− 1·57
	25	Piazzi XII. 75...	JC	6·8	10·1	13·0	15·8	22·1	28·1	31·2	34·3	37·2	12. 18. 22·04		22·36				12. 18. 35·08	− 1·61
	26	d^1 Virginis.....	JC	47·8	50·5	53·4	56·1	1·6	6·9	10·0	12·9	15·6	12. 35. 1·62		1·76				12. 35. 14·49	− 1·77
	27	28 Comæ	JC	9·2	12·c	..	17·6	23·4	29·2	..	34·8	37·7	12. 41. 23·38		23·59				12. 41. 36·33	
	28	41 Virginis	JC	44·0	46·9	49·6	52·5	58·1	3·9	6·6	9·5	12·4	12. 46. 58·13		58·33				12. 47. 11·08	− 1·76
	29	ϵ Virginis.....	JC	8·1	11·1	14·0	16·8	22·3	28·0	30·7	33·5	36·4	12. 55. 22·29		22·47	35·15	12·68		12. 55. 35·23	− 1·79
	30	Polaris S.P. (E&E)	JC	43·0	34·5	29·0	22·0	10·0	..	..	..	..	13. 10. 9·55		45·83	57·63	11·80		....	
	31	β Libræ	JC	26·3	29·3	32·0	34·8	40·4	46·2	48·9	51·7	54·5	15. 9. 40·43		40·40	53·31	12·91		15. 9. 53·29	− 2·18
	32	50 Boötis.....	JC	1·1	4·4	7·7	11·1	17·5	24·3	27·6	31·0	34·2	15. 16. 17·61		18·03				15. 16. 30·95	− 1·89
	33	Saturn 1 L.	JC	58·7	1·7	4·5	7·4	13·1	19·0	21·9	24·6	27·6	15. 19. 13·14		} 13·67				15. 19. 26·57	
	34	Saturn 2 L.	JC	0·0	3·0	5·9	8·6	14·4	20·2	23·2	26·0	28·8	15. 19. 14·43							
May 1	35	m Virginis	C	11·9	14·7	17·5	20·4	26·0	31·4	34·3	37·1	39·9	13. 34. 25·88	[−3·72]	25·92	40·09	14·17	13·37	....	
	36	B. F. 1883.....	C	..	..	..	9·4	15·4	21·5	24·4	27·4	30·4	13. 37. 15·36		15·70			[1·48]	13. 37. 29·91	− 1·81
	37	B. F. 1907.....	C	25·7	29·1	32·4	35·8	42·6	49·4	52·9	56·2	59·4	13. 45. 42·57		43·c6				13. 45. 57·28	− 1·81
	38	9 Boötis	C	1·3	4·4	7·5	10·8	17·0	23·3	26·4	29·6	32·6	13. 50. 16·96		17·36				13. 50. 31·58	− 1·82
	39	10 Boötis	C	57·4	0·4	3·3	6·4	12·3	18·3	21·3	24·3	27·3	13. 52. 12·31		12·64				13. 52. 26·87	− 1·84
	40	Piazzi XIII. 316.	C	4·2	8·1	12·1	16·0	23·7	31·4	35·5	39·3	43·2	14. 2. 23·68		24·32				14. 2. 38·55	− 1·87
	41	κ Virginis.....	C	22·1	25·0	27·8	30·6	36·2	41·8	44·6	47·4	50·2	14. 5. 36·16		36·19	50·43	14·24		....	
	42	Bradley 1848....	C	21·7	24·7	27·6	30·4	36·3	42·4	45·2	48·0	51·0	14. 9. 36·33		36·64				14. 9. 50·88	− 1·88
	43	A Boötis	C	52·4	55·9	59·1	2·7	9·5	16·4	19·8	23·2	26·7	14. 12. 9·48		9·99				14. 12. 24·24	− 1·85
	44	f Boötis	C	48·8	51·8	54·8	57·7	3·6	9·4	12·3	15·3	18·2	14. 20. 3·52		3·83	18·12	14·29		....	
	45	Groombridge 2116	C	50·4	54·4	58·1	1·8	9·2	16·8	20·6	24·2	28·0	14. 24. 9·23		9·84				14. 24. 24·10	− 1·89
May 2	46	Polaris S.P. (E&E)	E	..	31·0	23·0	15·0	4·0	47·5	..	..	..	13. 10. 3·70	(+7·13)	42·45	58·37	15·92	15·18	....	
	47	Spica	E	43·4	46·4	49·1	51·9	57·6	3·1	5·9	8·7	11·6	13. 17. 57·49		57·50	13·42	15·92	[1·47]	13. 18. 13·50	− 2·11

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·200.

April 30. The azimuthal error by tabular places of Lalande (F) 1729 and Polaris S.P., allowing 0s·13 for clock-rate.

May 1 and 2. The azimuthal error by tabular places of Polaris S.P. and Spica on May 2, allowing 0s·01 for clock-rate.

31, 33, 34. Faint; cloudy.

42. Very faint; cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
May 2	1	B. F. 1857.....	E	4·1	7·1	10·1	13·1	19·3	25·4	28·4	31·4	34·5	13. 24. 19·23	−0·07	19·58			15·18	13. 24. 35·58	− 1·78
	2	ζ Virginis.....	E	27·1	29·9	32·7	35·5	40·8	46·4	49·2	51·9	54·7	13. 27. 40·89	(+7·13)	41·00	57·03	16·03	[1·47]	13. 27. 57·00	− 1·97
	3	*m* Virginis.....	E	10·1	13·0	15·7	18·6	24·2	29·7	32·4	35·2	37·9	13. 34. 24·06	[−3·72]	24·09	40·10	16·01		13. 34. 40·10	− 2·11
	4	τ Boötis.....	E	27·5	30·5	33·4	36·2	42·0	48·0	50·8	53·9	56·7	13. 40. 42·08		42·36	58·36	16·00		13. 40. 58·38	− 1·84
	5	B. F. 1907.....	E	23·9	27·3	30·6	34·0	40·6	47·5	50·9	54·3	57·6	13. 45. 40·71		41·18				13. 45. 57·20	− 1·80
	6	11 Boötis.....	E	38·4	41·6	44·7	47·7	54·0	0·3	3·5	6·5	9·7	13. 54. 54·02		54·40				13. 55. 10·43	− 1·83
	7	Piazzi XIII. 316.	E	2·4	6·5	10·3	14·2	22·0	29·7	33·4	37·4	41·3	14. 2. 21·87		22·49				14. 2. 38·53	− 1·87
	8	ι Virginis.....	E	34·7	37·5	40·3	43·0	48·6	54·2	56·9	59·8	2·4	14. 8. 48·57		48·63				14. 9. 4·67	− 2·13
	9	Bradley 1848....	E	19·9	22·8	25·7	28·6	34·5	40·4	43·5	46·4	49·4	14. 9. 34·55		34·84				14. 9. 50·88	− 1·89
	10	Groombridge 2100	E	47·3	50·8	54·5	58·2	5·2	12·5	15·9	19·6	23·3	14. 14. 5·22		5·75				14. 14. 21·80	− 1·86
	11	*f* Boötis.....	E	47·0	49·9	52·9	55·8	1·7	7·6	10·7	13·5	16·5	14. 20. 1·71		2·01	18·13	16·12		14. 20. 18·06	− 1·90
	12	β Andromedæ ...	HC	43·6	47·0	50·3	53·7	0·4	7·2	10·6	14·0	17·4	1. 2. 0·43	[−2·78]	0·92	17·43	16·51	16·43	1. 2. 17·41	+ 0·13
	13	Mercury, center..	HC	19·5	22·4	25·3	28·0	33·4	39·1	41·9	44·5	47·4	1. 8. 33·47		33·66			[1·40]	1. 8. 50·16	
	14	α Arietis.....	HC	8·8	11·8	14·7	17·6	23·6	29·6	32·7	35·6	38·7	1. 59. 23·65		24·00	40·55	16·55		1. 59. 40·54	+ 0·28
May 3	15	☉ 1 L.....	HC	49·3	52·2	54·9	57·8	3·6	9·4	12·4	15·2	17·9	2. 39. 3·61		} 10·00				2. 40. 26·58	
	16	☉ 2 L.....	HC	1·4	4·4	7·1	10·1	15·8	21·5	24·5	27·4	30·2	2. 41. 15·79							
	17	α Persei.....	HC	11·4	15·8	20·0	24·3	32·7	41·2	45·4	49·8	53·8	3. 14. 32·66		33·38				3. 14. 50·00	+ 0·45
	18	Aldebaran.....	HC	45·7	48·7	51·6	54·6	..	6·0	9·0	11·8	14·6	4. 28. 0·22		0·52	17·15	16·63		4. 28. 17·21	+ 0·32
	19	ο Ursæ Majoris ..	HC	..	..	36·4	42·2	53·5	5·2	11·1	..	..	8. 18. 53·62		54·65				8. 19. 11·56	− 0·16
	20	ε Hydræ.....	HC	13·4	16·2	19·1	21·8	27·4	32·9	35·8	38·6	41·3	8. 39. 27·36		27·58	44·51	16·93		8. 39. 44·51	− 0·65
	21	59 Cancri.....	HC	10·5	13·8	17·2	20·4	27·0	33·7	37·0	40·2	43·6	8. 48. 27·00		27·47				8. 48. 44·42	− 0·60
	22	7 Leonis Minoris.	HC	7·1	10·6	13·8	17·2	23·8	30·5	34·0	37·3	40·5	9. 22. 23·83		24·31				9. 22. 41·29	− 0·76
	23	13 Leonis Minoris	HC	7·4	11·0	14·4	17·7	24·6	31·4	34·9	38·2	41·6	9. 34. 24·54		25·04				9. 34. 42·03	− 0·81
	24	Piazzi IX. 221 ..	HC	..	26·3	29·6	32·7	39·2	45·4	48·7	51·9	..	9. 51. 39·07		39·56				9. 51. 56·51	− 0·95
	25	Regulus.....	HC	46·7	49·6	52·4	55·3	1·0	6·6	9·4	12·3	15·2	10. 1. 0·92		1·18	18·23	17·05		10. 1. 18·10	− 1·04
	26	Piazzi IX. 254 ..	HC	22·2	26·0	29·6	33·3	40·6	47·9	51·8	55·4	59·0	10. 2. 40·61		41·19				10. 2. 58·21	− 0·92
	27	Bradley 1433....	HC	40·3	44·1	47·9	51·5	58·9	6·4	10·2	13·8	17·5	10. 13. 58·91		59·56				10. 14. 16·53	− 0·98
	28	Groombridge 1646	HC	..	..	21·0	25·2	33·6	42·4	46·5	..	..	10. 19. 33·69		34·41				10. 19. 51·44	− 0·98
	29	33 Leonis Minoris	HC	..	48·4	51·6	54·9	1·5	8·1	11·5	14·7	..	10. 24. 1·49		1·96				10. 24. 19·00	− 1·07
	30	35 Leonis Minoris	HC	9·2	12·8	16·1	19·7	26·4	33·5	37·0	40·4	43·9	10. 28. 26·51		27·03				10. 28. 44·07	− 1·07
	31	36 Leonis Minoris	HC	..	..	..	..	..	9·5	13·0	16·2	19·6	10. 30. 2·74		3·23				10. 30. 20·27	− 1·09
	32	Piazzi X. 131 ...	HC	11·1	14·4	17·7	20·9	27·4	34·0	37·4	40·6	43·8	10. 34. 27·43		27·89				10. 34. 44·94	− 1·12
	33	43 Leonis Minoris	HC	..	7·7	11·0	14·2	20·5	27·0	30·2	33·4	..	10. 41. 20·53		20·96				10. 41. 38·01	− 1·16
	34	44 Leonis Minoris	HC	..	..	..	12·4	18·5	24·8	..	31·2	34·3	10. 42. 18·54		18·96				10. 42. 36·01	− 1·17
	35	Bradley 1514....	HC	48·8	52·4	55·6	58·8	5·6	12·4	15·7	19·1	22·4	10. 48. 5·60		6·08				10. 48. 23·14	− 1·17
	36	49 Ursæ Majoris.	HC	48·3	52·0	55·5	59·0	6·2	13·5	17·1	20·8	24·3	10. 53. 6·26		6·82				10. 53. 23·89	− 1·18
	37	χ Leonis.....	HC	39·4	42·2	45·0	47·8	53·4	58·9	1·8	4·6	7·4	10. 57. 53·36		53·59	10·65	17·06		10. 58. 10·66	− 1·36
	38	67 Leonis.....	HC	9·2	12·4	15·4	18·4	24·5	30·6	33·7	36·8	39·8	11. 1. 24·50		24·88				11. 1. 41·95	− 1·27
	39	Piazzi XI. 22 ...	HC	30·6	33·4	36·4	39·2	44·8	50·5	53·3	56·3	59·0	11. 8. 44·80		45·07				11. 9. 2·15	− 1·37
	40	71 Leonis.....	HC	0·6	3·6	6·4	9·4	15·3	21·0	23·9	26·8	29·7	11. 15. 15·16		15·47				11. 15. 32·55	− 1·37
	41	57 Ursæ Majoris.	HC	..	..	26·8	30·4	37·5	44·9	48·4	..	..	11. 21. 37·56		38·12				11. 21. 55·21	− 1·31
	42	86 Leonis.....	HC	..	..	..	..	16·4	22·4	25·3	28·2	31·1	11. 23. 16·45		16·78				11. 23. 33·87	− 1·40
	43	92 Leonis.....	HC	21·0	24·1	27·0	30·1	35·9	41·9	45·0	47·9	50·9	11. 33. 35·95		36·29				11. 33. 53·39	− 1·42
	44	Piazzi XI. 146...	HC	59·2	3·2	6·8	10·6	..	..	..	..	..	11. 36. 18·03		18·62				11. 36. 35·73	− 1·37
	45	β Leonis.....	HC	46·1	49·1	51·9	54·9	0·5	6·3	9·2	12·0	14·9	11. 42. 0·52		0·81	17·92	17·11		11. 42. 17·92	− 1·48
	46	66 Ursæ Majoris.	HC	18·3	23·4	28·7	33·8	44·0	54·3	59·4	4·6	9·6	11. 48. 43·95		44·86				11. 49. 1·98	− 1·47
	47	3 Comæ.....	HC	..	17·4	20·2	23·2	29·0	34·8	37·7	40·6	..	12. 3. 28·95		29·26				12. 3. 46·39	− 1·57
	48	10 Comæ.....	HC	37·3	40·5	43·6	46·8	53·0	59·4	2·6	5·7	8·8	12. 12. 53·05		53·47				12. 13. 10·61	− 1·55

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, $31^{r}\cdot200$.
May 3 and 4. The azimuthal error by Polaris S.P., Polaris, and Polaris S.P. on May 3 and 4.

12, 18. Very tremulous. 13. Scarcely visible. 40. Very faint. 42, 44, 47. Very cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
May 7	1	Aldebaran	JC	40·4	43·4	46·3	49·1	54·7	0·6	3·4	6·3	9·4	4. 27. 54·81	+0·14	55·05	17·15	22·10	21·80	4. 28. 17·13	+ 0·32
	2	*l* Leonis	D	40·0	43·0	45·8	48·6	54·2	0·0	2·7	5·5	8·3	10. 41. 54·20	(+4·48)	54·42	17·06	22·64	21·95†	....	
	3	*d* Leonis	D	6·1	9·0	11·7	14·4	20·0	25·4	28·3	31·1	33·8	10. 53. 19·95	[−0·69]	20·14	42·75	22·61	[1·51]	....	
	4	β Leonis	JC	40·8	43·6	46·5	49·4	55·1	1·0	3·8	6·6	9·6	11. 41. 55·13		55·37	17·89	22·52	21·80	11. 42. 17·90	− 1·45
	5	η Crateris	JC	39·2	42·2	45·0	47·8	53·6	59·3	2·2	5·2	8·0	11. 48. 53·58		53·67				11. 49. 16·21	− 1·84
	6	π Virginis	JC	28·2	31·2	34·0	36·7	42·3	48·0	50·6	53·4	56·0	11. 53. 42·24		42·44	5·00	22·56		11. 54. 4·99	− 1·57
	7	Piazzi XII. 3	JC	23·3	26·7	29·7	32·9	39·1	45·5	48·6	51·6	54·8	12. 3. 39·10		39·41				12. 4. 1·97	− 1·48
	8	3 Canum Venat.	JC	32·1	36·5	40·7	45·1	53·6	2·0	6·3	10·7	14·9	12. 12. 53·49		53·97				12. 13. 16·54	− 1·48
	9	ϵ Virginis	JC	..	..	..	6·6	12·3	18·2	20·9	23·8	26·6	12. 55. 12·39		12·61	35·12	22·51		12. 55. 35·22	− 1·76
	10	Bradley 1745	JC	54·7	57·8	0·9	4·1	10·3	16·5	19·7	22·8	26·0	13. 1. 10·20		10·60				13. 1. 33·22	− 1·68
	11	Piazzi XII. 283	JC	..	..	..	.	54·4	0·2	3·1	6·0	8·8	13. 2. 54·35		54·60				13. 3. 17·22	− 1·75
	12	Polaris S.P. (E&E)	JC	..	15·5	..	..	..	35·5	25·0	..	14·5	13. 9. 49·01		38·04	1·16	23·12		1. 10. 0·67	+ 16·20
	13	*e* Virginis	JC	35·5	38·4	41·1	43·9	49·4	..	..	..	..	13. 9. 49·50		49·71				13. 10. 12·34	− 1·82
	14	Piazzi XIII. 41	JC	..	..	..	..	19·8	25·6	28·6	31·3	34·1	13. 10. 19·86		20·09				13. 10. 42·72	− 1·87
	15	66 Virginis	JC	..	..	8·9	11·6	17·0	22·8	25·4	28·2	31·0	13. 17. 17·10		17·24				13. 17. 59·88	− 2·01
	16	B. F. 1857	JC	..	..	..	6·4	12·6	18·8	21·9	24·8	27·8	13. 24. 12·59		12·88				13. 24. 35·52	− 1·76
	17	*m* Virginis	JC	3·4	6·2	9·0	11·8	17·4	23·0	25·8	28·7	31·4	13. 34. 17·38		17·51	40·10	22·59		13. 34. 40·16	− 2·11
	18	η Ursæ Majoris	JC	..	39·3	43·7	47·9	56·3	5·1	9·4	13·7	..	13. 41. 56·43		56·91				13. 42. 19·57	− 1·83
	19	B. F. 1907	JC	..	..	..	..	27·4	34·1	41·0	44·4	47·7	51·0	13. 45. 34·13	34·48				13. 45. 57·14	− 1·80
	20	Bradley 1848	JC	13·3	16·3	19·2	22·1	28·0	33·8	36·7	39·7	42·7	14. 9. 27·95		28·20				14. 9. 50·89	− 1·90
	21	A Boötis	JC	..	..	..	..	..	..	11·5	14·9	18·5	14. 12. 1·23		1·59				14. 12. 24·28	− 1·86
	22	Groombridge 2100	JC	40·9	44·8	48·1	51·6	58·7	6·2	9·6	13·2	16·7	14. 13. 58·82		59·21				14. 14. 21·90	− 1·87
	23	*f* Boötis	JC	40·3	43·6	46·4	49·2	55·1	0·9	4·0	6·8	9·8	14. 19. 55·09		55·35	18·14	22·79		14. 20. 18·05	− 1·91
	24	Comet II. 1867	JC	55·5	58·7	1·5	4·1	10·1	15·7	18·4	21·0	23·6	15. 6. 9·82		9·97				15. 6. 32·72	
	25	Saturn 1 L.	JC	44·4	47·6	50·3	53·1	58·7	4·8	7·5	10·4	13·4	15. 16. 58·88		} 59·63				15. 17. 22·39	
	26	Saturn 2 L.	JC	45·9	48·8	51·6	54·5	0·1	5·9	9·0	11·8	14·5	15. 17. 0·21		42·58	5·41	22·83		15. 29. 5·35	− 1·95
	27	α Coronæ	JC	26·6	29·9	33·0	36·2	42·2	48·5	51·8	54·9	57·7	15. 28. 42·28		51·01				15. 37. 13·79	
	28	Pallas	JC	35·4	38·7	41·7	44·8	50·6	56·8	59·9	2·9	5·9	15. 36. 50·72		57·87	20·69	22·82		15. 50. 20·66	− 2·00
	29	γ Serpentis	JC	43·3	46·1	48·9	51·9	57·6	3·5	6·4	9·2	12·1	15. 49. 57·63		35·45				15. 53. 58·25	− 1·95
	30	Var. (T) Coronæ	JC	19·7	23·0	26·0	29·1	35·2	41·2	44·4	47·4	50·6	15. 53. 35·15		23·85				16. 2. 46·65	
	31	Ceres	JC	9·5	12·4	15·3	18·0	23·6	29·8	32·2	35·2	38·0	16. 2. 23·75		55·63			23·41	0. 44. 18·61	
	32	Venus 2 L.	E	..	44·3	47·1	50·0	55·5	1·1	3·7	6·7	..	0. 43. 55·45		37·04	1·40	24·36	[2·03]	1. 10. 0·55	+ 15·96
	33	Polaris (E&E)	E	..	55·5	48·0	42·5	25·5	13·0	..	..	..	1. 9. 25·78							
May 8	34	δ Leonis	C	24·0	27·0	30·0	33·0	38·9	44·9	47·7	50·7	53·8	11. 6. 38·85		39·12	3·17	24·05	23·10†	....	
	35	τ Leonis	C	29·2	32·0	34·7	37·6	43·0	48·6	51·4	54·1	56·8	11. 20. 43·02		43·21	7·25	24·04		....	
	36	δ Corvi	E	22·3	25·1	28·1	30·8	36·6	42·4	45·4	48·1	51·0	12. 22. 36·61		36·70	1·20	24·50	23·41	12. 23. 1·16	− 1·98
	37	ρ Virginis	E	32·1	35·0	37·7	40·6	46·2	52·0	54·8	57·5	0·4	12. 34. 46·22		46·44				12. 35. 10·91	− 1·70
	38	35 Virginis	E	28·5	31·2	33·9	36·7	42·2	47·9	50·6	53·4	56·1	12. 40. 42·25		42·44	6·86	24·42		12. 41. 6·92	− 1·78
	39	29 Comæ	E	37·0	40·0	42·8	45·6	51·3	57·0	59·9	2·8	5·6	12. 41. 51·31		51·54				12. 42. 16·02	− 1·69
	40	41 Virginis	E	32·2	35·1	37·9	40·7	46·4	52·1	54·8	57·8	0·6	12. 46. 46·37		46·60				12. 47. 11·09	− 1·73
	41	ϵ Virginis	E	56·4	..	2·0	4·8	10·4	16·1	19·1	..	24·6	12. 55. 10·47		10·69	35·12	24·43		12. 55. 35·20	− 1·76
	42	Polaris S.P. (E&E)	E	22·5	14·0	7·5	0·0	..	..	..	..	..	13. 9. 48·15		37·18	1·64	24·46		1. 10. 1·70	+ 15·72
	43	Piazzi XIII. 41	E	3·6	6·6	..	12·2	18·0	23·7	..	29·4	32·3	13. 10. 17·94		18·17				13. 10. 42·69	− 1·79
	44	63 Virginis	E	17·1	20·1	23·0	25·8	31·4	..	40·2	43·2	..	13. 15. 31·55		31·64				13. 15. 56·17	− 2·21
	45	B. F. 1857	E	55·4	..	1·7	4·6	10·7	..	20·0	23·0	26·1	13. 24. 10·74		11·03				13. 24. 35·58	− 1·76
	46	ζ Virginis	E	18·4	21·3	24·1	..	32·4	..	40·6	43·3	46·1	13. 27. 32·28		32·44	57·03	24·59		13. 27. 56·99	− 1·97
	47	Arcturus	E	58·0	..	..	6·9	..	18·6	..	..	..	14. 9. 12·71		12·97	37·62	24·65		14. 9. 37·57	− 1·86
	48	106 Virginis	E	..	7·3	10·0	12·8	18·5	..	..	..	..	14. 21. 18·38		18·51				14. 21. 43·14	− 2·18

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S. P.

Reading of Transit-Micrometer, 31r·200.
Correction for passage of Semidiameter, No. 32, −0s·49.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

1. Very faint. 12. The star very badly defined.
24. Very faint; the condensation in the center perhaps as bright as a star of the 10–11 magnitude.
25, 26. The definition extremely bad.
30. The definition very bad, and the magnitude difficult to estimate; about 8·5.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
May 8	1	5 Ursæ Minoris ..	E	..	..	..	53·2	..	27·6	51·3	..	..	14. 27. 27·81	+ 0·14	29·07			23·41	14. 27. 53·70	— 3·32
	2	α Coronæ	E	24·6	28·1	31·2	34·2	40·4	46·7	49·9	53·0	56·2	15. 28. 40·45	(+ 4·48)	40·75	5·42	24·67	[2·03]	15. 29. 5·47	— 1·96
	3	Var. (T) Coronæ.	E	..	21·0	23·9	27·0	33·1	39·4	42·5	45·6	..	15. 53. 33·17	[—0·69]	33·47				15. 53. 58·22	— 1·97
	4	Ceres	E	15·3	18·1	21·1	23·7	29·4	35·2	38·0	40·9	43·7	16. 1. 29·45		29·55				16. 1. 54·32	
	5	δ Ophiuchi.....	E	46·0	48·7	51·4	54·3	59·9	5·4	8·2	11·0	13·7	16. 6. 59·81		59·96	24·78	24·82		16. 7. 24·73	— 2·15
	6	Venus 2 L.....	D	3·2	6·0	8·7	11·4	17·0	22·7	25·4	28·1	31·0	0. 48. 17·02		17·20			25·49	0. 48. 42·29	
	7	β Andromedæ ...	D	34·8	38·3	41·5	45·0	51·6	58·5	1·6	5·1	8·4	1. 1. 51·61		51·96	17·56	25·60	[2·46]	1. 2. 17·56	0·00
	8	Polaris.... (E&E)	D	..	..	48·0	42·0	26·0	12·0	8·0	..	..	1. 9. 26·00		37·26	1·87	24·61		1. 10. 2·87	+15·49
	9	Mercury 2 L.....	D	57·4	0·4	3·1	5·8	11·4	17·0	19·9	22·7	25·4	1. 41. 11·43		11·63				1. 41. 37·09	
May 9	10	⊙ 1 L.	D	..	..	..	58·2	4·1	10·0	12·8	15·7	18·5	3. 2. 4·04		} 10·95				3. 3. 36·75	
	11	⊙ 2 L.....	D	3·0	5·7	8·7	11·6	17·3	23·2	26·0	29·0	31·9	3. 4. 17·35							
	12	χ Leonis.....	JC	29·9	32·7	35·4	38·4	43·9	49·6	52·3	55·0	57·8	10. 57. 43·86		44·06	10·57	26·51	25·39†	....	
	13	δ Leonis	JC	..	..	27·4	30·4	36·3	42·4	45·4	48·3	51·3	11. 6. 36·36		36·63	3·16	26·53		....	
	14	δ² Corvi	D	19·9	23·0	25·7	28·5	34·2	40·0	43·0	45·8	48·6	12. 22. 34·27		34·36	1·19	26·83	25·49	12. 23. 1·12	— 1·97
	15	β Corvi	D	44·8	47·8	50·8	53·8	59·7	5·7	8·8	11·8	14·6	12. 26. 59·72		59·77	26·38	26·61		12. 27. 26·53	— 2·13
	16	δ Virginis.....	D	15·2	18·0	20·9	23·6	29·0	34·7	37·4	40·2	43·0	12. 48. 29·08		29·27	56·11	26·84		12. 48. 56·06	— 1·80
	17	ε Virginis.....	D	53·9	56·8	59·7	2·4	8·0	13·7	16·6	19·4	22·2	12. 55. 8·05		8·27	35·11	26·84		12. 55. 35·08	— 1·75
	18	18 Canum Venat.	D	42·1	45·8	49·4	53·4	0·7	8·0	11·8	15·4	19·0	13. 5. 0·59		0·99				13. 5. 27·82	— 1·66
	19	Polaris S.P. (E&E)	D	21·5	14·0	..	..	..	30·0	24·0	..	..	13. 9. 46·59		35·62	2·09	26·47		1. 10. 2·45	+15·27
	20	Piazzi XIII. 41 .	D	1·5	4·4	7·2	9·9	15·6	21·5	24·4	27·3	30·0	13. 10. 15·72		15·95				13. 10. 42·78	— 1·79
	21	ξ² Libræ	D	54·4	57·2	0·0	2·8	8·4	14·1	16·9	19·6	22·6	14. 49. 8·41		8·52	35·55	27·03		14. 49. 35·52	— 2·29
	22	Piazzi XIV. 226 .	D	19·9	22·7	25·6	28·5	34·4	40·0	43·0	45·9	48·8	14. 50. 34·27		34·51				14. 51. 1·52	— 1·98
	23	Venus 2 L.....	C	24·4	27·3	30·2	33·0	38·4	44·1	46·9	49·5	52·4	0. 52. 38·43		38·61			27·80	0. 53. 6·01	
	24	Polaris ....(E&E)	C	..	..	..	..	24·0	..	..	58·5	49·0	1. 9. 23·94		35·20	2·30	27·10	[2·49]	1. 10. 3·11	+15·06
May 10	25	τ Virginis.....	C	11·6	14·4	17·3	19·9	25·4	31·0	33·6	36·4	39·1	13. 54. 25·38		25·56	54·79	29·23		....	
	26	Piazzi XIII. 316.	C	49·6	53·5	57·4	1·3	9·0	16·8	20·5	24·4	28·3	14. 2. 8·93		9·35				14. 2. 38·60	— 1·85
	27	κ Virginis	C	7·0	9·9	12·8	15·6	21·0	26·6	29·6	32·3	35·2	14. 5. 21·09		21·21	50·46	29·25		....	
	28	Bradley 1848....	C	6·7	9·7	12·6	15·5	21·4	27·4	30·2	33·3	36·2	14. 9. 21·42		21·67				14. 9. 50·92	— 1·90
	29	Groombridge 2100	C	34·4	38·0	41·6	45·2	52·3	59·5	3·2	6·7	10·3	14. 13. 52·32		52·70				14. 14. 21·96	— 1·87
	30	f Boötis	C	34·0	36·8	39·7	42·8	48·5	54·5	57·5	0·4	3·3	14. 19. 48·58		48·83	18·15	29·32		....	
	31	Groombridge 2116	C	35·8	39·6	43·4	47·2	54·6	2·1	6·1	9·7	13·2	14. 23. 54·59		54·99				14. 24. 24·26	— 1·90
	32	Groombridge 2135	C	25·8	29·7	33·6	37·4	45·1	52·7	56·8	0·6	4·3	14. 32. 45·07		45·49				14. 33. 14·78	— 1·93
	33	ι Boötis	C	20·1	23·1	25·9	28·8	34·6	40·6	43·5	46·2	49·2	14. 38. 34·64		34·88				14. 39. 4·18	— 1·96
	34	α² Libræ	C	50·0	53·1	55·9	58·8	4·5	10·3	13·0	16·0	18·9	14. 43. 4·47		4·56	33·83	29·27		....	
May 11	35	π Leonis	JC	26·6	29·4	32·2	35·0	40·4	46·0	48·8	51·6	54·4	9. 52. 40·46	[—1·89]	40·60	11·91	31·31	30·31	9. 53. 11·92	— 0·92
	36	Regulus	JC	32·4	35·2	38·1	41·0	46·6	52·3	55·1	57·9	0·8	10. 0. 46·57		46·74	18·12	31·38	[2·46]	10. 1. 18·07	— 0·93
	37	☽ 1 L.....	JC	42·0	44·8	47·9	50·6	56·4	2·1	5·0	7·9	10·7	10. 9. 56·35		56·49				10. 11. 34·15	
	38	Groombridge 1646	JC	58·1	2·1	6·6	11·1	19·5	28·0	32·4	36·5	40·7	10. 19. 19·40		19·86				10. 19. 51·23	— 0·79
	39	ρ Leonis	JC	3·8	6·8	9·6	12·4	18·0	23·7	26·4	29·3	32·1	10. 25. 17·98		18·13	49·48	31·35		10. 25. 49·51	— 1·09
	40	36 Leonis Minoris	JC	31·7	35·0	38·4	41·7	48·4	55·1	58·6	1·9	5·3	10. 29. 48·41		48·73				10. 30. 20·11	— 0·95
	41	Piazzi X. 131....	JC	56·8	0·2	3·4	6·6	13·1	19·8	22·9	26·3	29·4	10. 34. 13·13		13·43				10. 34. 44·82	— 0·99
	42	l Leonis	JC	31·4	34·3	37·0	39·8	45·5	51·1	53·8	56·7	59·5	10. 41. 45·43		45·60	17·01	31·41		10. 42. 17·01	— 1·16
	43	50 Leonis Minoris	JC	35·0	38·2	41·4	44·5	50·4	56·8	59·8	3·0	6·1	10. 48. 50·55		50·81				10. 49. 22·23	— 1·10
	44	ε Corvi	S	32·6	35·8	38·6	41·6	47·6	53·5	56·4	59·4	2·7	12. 2. 47·55		47·52	19·28	31·76	30·50†	....	
	45	η Virginis	S	22·2	25·0	27·6	30·4	36·0	41·6	44·4	47·1	49·8	12. 12. 35·98		36·08	7·80	31·72		....	
	46	Polaris S.P. (E&E)	JC	..	..	..	..	43·0	28·0	23·0	15·0	10·5	13. 9. 44·39		31·32	2·94	31·62	30·31	....	

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31ʳ·200.
Corrections for passage of Semidiameter, Nos. 6, 9, 23 and 37, −0ˢ·48 : −0ˢ·20 : −0ˢ·48 : and +66ˢ·30.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
May 11. The azimuthal error by tabular places of Polaris S.P. and ζ Virginis, allowing 0ˢ·03 for clock-rate.

24. Very cloudy.

37. Correction to R.A. on true Meridian, +0ˢ·01.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
May 22	1	⊙ 1 L.	C	37·6	40·6	..	..	52·3	58·3	..	..	..	3. 52. 52·35	+0·65	53·01			56·22	3. 54. 57·30	
	2	35 Virginis	C	55·0	57·8	0·4	3·4	8·8	14·5	17·2	19·8	22·8	12. 40. 8·82	(+10·46)	9·29	6·77	57·48	[2·40]	12. 41. 6·78	− 1·69
	3	Brad. 1730 (E&E)	C	44·5	13·0	40·5	5·6	0·6	..	..	..	..	12. 47. 0·36	[−0·99]	6·98				12. 48. 4·48	− 2·27
	4	Brad. 1731 (E&E)	C	53·0	21·0	48·0	15·5	9·0	..	..	..	..	12. 47. 8·82		15·44				12. 48. 12·94	− 2·27
	5	ε Virginis	C	22·8	25·7	28·4	31·4	36·9	42·7	45·5	48·3	51·1	12. 54. 36·95		37·51	35·03	57·52		12. 55. 35·02	− 1·67
	6	Piazzi XII. 283	C	4·5	7·4	10·3	13·3	19·0	..	..	..	..	13. 2. 19·00		19·63				13. 3. 17·15	− 1·66
	7	17 Can. Ven.	C	..	..	49·0	52·5	59·6	6·7	10·4	13·9	17·4	13. 2. 59·58		0·51				13. 3. 58·04	− 1·52
	8	Polaris S.P. (E&E)	C	..	..	..	49·0	38·0	23·0	16·0	..	..	13. 9. 37·84		12·42	9·99	57·57		....	
	9	66 Virginis	C	28·1	30·9	33·7	36·4	41·9	47·4	50·4	53·1	55·8	13. 16. 41·94		42·33				13. 17. 39·88	− 1·97
	10	Groom. 2007 (E&E)	C	..	..	..	..	3·5	14·0	48·5	23·0	57·0	13. 19. 3·23		11·64				13. 20. 9·19	− 3·99
	11	ζ Virginis	C	45·2	48·0	50·7	53·4	58·9	4·6	7·4	10·0	12·8	13. 26. 58·97		59·40	56·99	57·59		13. 27. 56·96	− 1·93
	12	Piazzi XIV. 150	C	..	24·0	27·0	30·4	37·0	44·0	47·2	50·5	..	14. 34. 37·12		37·15				14. 35. 34·83	− 2·93
	13	α^2 Libræ	C	21·6	24·5	27·4	30·3	36·0	41·8	44·5	47·4	50·4	14. 42. 35·96		36·24	33·89	57·65		14. 43. 33·93	− 2·43
	14	B. F. 2033	C	0·4	3·9	7·4	11·0	17·8	25·1	28·4	32·0	35·4	14. 44. 17·89		18·79				14. 45. 16·48	− 1·93
	15	ξ^2 Libræ	C	23·6	26·3	29·3	32·0	37·6	43·4	46·1	48·9	51·7	14. 48. 37·62		37·94	35·61	57·67		14. 49. 35·64	− 2·35
	16	B. F. 2051	C	5·1	8·8	12·4	16·2	23·3	30·6	34·3	37·8	41·4	14. 53. 23·28		24·23				14. 54. 21·94	− 1·96
	17	β Boötis	C	41·2	45·0	48·5	52·1	59·4	6·8	10·4	14·0	17·7	14. 55. 59·42		0·38				14. 56. 58·09	− 1·97
	18	Groombridge 2201	C	17·3	20·9	24·4	28·0	35·0	42·2	45·7	49·2	52·8	15. 7. 35·02		35·95				15. 8. 33·68	− 2·01
	19	Saturn 1 L.	C	41·1	44·0	46·8	49·7	55·3	1·2	4·0	7·0	9·7	15. 11. 55·39		56·36				15. 12. 54·10	
	20	Saturn 2 L.	C	42·4	45·4	48·3	51·0	56·8	2·6	5·4	8·3	11·0	15. 11. 56·77		33·28				15. 16. 31·03	− 2·02
	21	50 Boötis	C	15·9	19·3	22·5	25·8	32·5	39·1	42·4	45·7	49·1	15. 15. 32·44		41·64				15. 19. 39·39	− 2·09
	22	τ^1 Serpentis	C	26·6	29·6	32·4	35·2	41·2	46·9	49·7	52·5	55·4	15. 18. 41·03		7·38	5·51	58·13	56·57†	....	
	23	α Coronæ	E	..	..	57·3	0·4	6·8	13·0	16·0	19·0	22·1	15. 28. 6·63		34·71			56·22	15. 30. 32·48	− 2·85
	24	40 Libræ	C	18·7	22·0	25·0	28·3	34·6	41·1	44·2	47·4	50·4	15. 29. 34·60		47·19	45·29	58·10	56·57†	....	
	25	α Serpentis	E	32·8	35·6	38·4	41·1	46·6	52·3	55·1	57·8	0·8	15. 36. 46·69		49·54			56·22	15. 42. 47·33	− 2·11
	26	κ Serpentis	C	34·3	37·3	40·2	43·1	49·0	54·8	57·7	0·6	3·4	15. 41. 48·90		15·65	13·48	57·83		15. 44. 13·44	− 2·22
	27	ε Serpentis	C	1·2	4·1	6·9	9·6	15·1	20·8	23·6	26·3	29·2	15. 43. 15·17		0·59				15. 53. 58·39	− 2·09
	28	Var. (T) Coronæ	C	..	47·5	50·6	53·7	59·9	6·0	9·3	12·2	..	15. 52. 59·85		46·75			56·30	18. 56. 44·94	− 2·13
	29	ι Sagittarii	HC	31·6	34·7	37·8	40·6	46·4	52·5	55·6	58·6	1·4	18. 55. 46·55		55·08			[2·40]	19. 1. 53·28	− 2·10
	30	π Sagittarii	HC	40·0	43·0	46·0	49·0	54·9	0·8	3·9	6·9	9·6	19. 0. 54·87		38·05	36·26	58·21		....	
	31	ω Aquilæ	HC	23·3	26·3	29·1	32·0	37·5	43·1	46·1	48·9	51·5	19. 10. 37·50		51·12	49·34	58·22		....	
	32	δ Aquilæ	HC	36·8	39·6	42·2	45·2	50·9	56·3	58·8	1·9	4·5	19. 17. 50·66		28·64				19. 30. 22·69	
	33	☽ 2 L.	HC	..	16·5	..	..	..	34·4	37·4	40·4	43·4	19. 30. 28·40		50·22	48·52	58·30		....	
	34	β Aquilæ	HC	..	..	41·4	44·2	49·8	55·4	58·1	0·9	3·6	19. 47. 49·73							
May 23	35	η Virginis	L	53·7	56·6	59·4	2·1	7·5	13·3	16·2	18·7	21·5	12. 12. 7·63	[−0·14]	8·10	7·70	59·60	58·43	12. 13. 7·72	− 1·60
	36	δ Virginis	L	42·0	44·7	47·4	50·3	55·8	1·3	4·2	6·8	9·7	12. 47. 55·77		56·28	56·02	59·74	[2·34]	12. 48. 55·95	− 1·71
	37	18 Can. Ven.	L	8·6	12·3	15·8	19·7	26·8	34·1	37·6	41·6	45·4	13. 4. 26·84		27·83				13. 5. 27·54	− 1·51
	38	19 Can. Ven.	L	15·3	19·0	22·6	26·4	33·7	41·2	45·0	48·5	52·2	13. 8. 33·73		34·72				13. 9. 34·43	− 1·75
	39	Polaris S.P. (E&E)	L	8·5	2·5	..	..	..	17·5	13·0	6·0	59·5	13. 9. 34·89		10·96	10·63	59·67		....	
	40	ζ Virginis	L	43·1	46·0	48·7	51·4	56·7	2·2	5·0	8·0	10·7	13. 26. 56·83		57·30	56·99	59·69		13. 27. 57·04	− 1·93
	41	ψ Boötis	L	30·5	33·7	36·8	39·9	46·0	52·3	55·4	58·5	1·7	14. 57. 46·06		46·84	46·82	59·98		14. 58. 46·73	− 1·98
	42	Saturn 1 L.	L	21·3	24·2	27·2	30·1	35·6	41·5	44·4	47·2	50·0	15. 11. 35·69		36·69				15. 12. 36·61	
	43	Saturn 2 L.	L	22·7	25·6	28·4	31·4	37·1	42·8	45·7	48·5	51·4	15. 11. 37·03		30·01				15. 19. 29·93	− 2·03
	44	μ^1 Boötis	L	11·6	15·2	18·7	22·2	29·0	36·2	39·5	43·1	46·7	15. 18. 29·09		38·48				15. 30. 38·42	− 2·09
	45	Groombridge 2253	L	18·4	22·4	26·1	29·9	37·2	45·2	49·0	52·8	56·4	15. 29. 37·45		54·47				15. 34. 54·42	− 2·03
	46	τ^6 Serpentis	L	39·5	42·4	45·3	48·1	53·7	59·6	2·5	5·3	8·3	15. 33. 53·83		13·48	13·49	60·01		15. 44. 13·45	− 2·23
	47	ε Serpentis	L	59·1	2·0	4·7	7·5	13·0	18·6	21·2	24·0	26·8	15. 43. 12·96		58·23				15. 53. 58·21	− 2·10
	48	Var. (T) Coronæ	L	42·1	45·3	48·2	51·1	57·4	3·6	6·8	9·9	13·0	15. 52. 57·46							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S. P.

Reading of Transit-Micrometer, $31^r{\cdot}200$.
Corrections for passage of Semidiameter, Nos. 1 and 33, $+67^s{\cdot}68$ and $-64^s{\cdot}21$.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.
May 22 and 23. The azimuthal error on each day by tabular places of Polaris S.P. and ζ Virginis, allowing $0^s{\cdot}02$ for clock-rate.

1. Cloudy during the transit of 2 L.
10. Faint: cloudy.
28. The star appeared a *very little* brighter than the preceding star in the same parallel.
33. Very cloudy. Correction to R.A. on true Meridian, $+0^s{\cdot}01$.
34. Very faint.
48. Of the $8\frac{3}{4}$ magnitude.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	n	s	s	s	s	h m s	s
May 23	1	43 Serpentis	L	59·0	1·8	4·6	7·4	12·8	18·4	21·3	23·9	26·9	15. 56. 12·87	+0·65	13·39			58·43	15. 57. 13·37	− 2·23
	2	47 Serpentis	L	..	..	..	..	..	..	16·1	19·1	..	16. 1. 4·97	(+10·46)	5·53			[2·34]	16. 2. 5·53	− 2·20
	3	Bradley 2048....	L	..	..	..	..	..	..	22·2	25·0	27·9	16. 1. 13·81	[−0·14]	14·37				16. 2. 14·37	− 2·20
	4	χ Scorpii	L	17·4	20·6	23·3	26·0	31·7	37·4	40·1	43·1	45·8	16. 5. 31·68		32·05				16. 6. 32·05	− 2·45
	5	13 Herculis	L	32·6	35·6	38·4	41·2	46·7	52·3	55·0	58·1	0·9	16. 7. 46·72		47·31				16. 8. 47·31	− 2·18
	6	υ Coronæ	L	10·6	13·8	17·0	20·1	26·3	32·7	35·9	39·2	42·3	16. 10. 26·40		27·20				16. 11. 27·21	− 2·12
	7	B. F. 2244	L	4·8	7·8	10·8	13·6	19·4	25·5	28·4	31·5	34·4	16. 13. 19·54		20·25				16. 14. 20·26	− 2·14
	8	ξ Coronæ	L	40·0	43·4	46·6	49·9	56·2	2·6	6·0	9·3	12·4	16. 15. 56·23		57·06				16. 16. 57·08	− 2·12
	9	Antares	L	2·5	5·8	8·9	11·9	17·9	24·1	27·3	30·4	33·4	16. 20. 17·99		18·20	18·11	59·91		16. 21. 18·23	− 2·75
	10	μ Herculis	JC	..	..	..	..	16·5	22·6	25·6	28·6	31·9	17. 40. 16·25		17·03	17·37	60·34	58·51†	....	
	11	η Serpentis.....	JC	13·4	16·1	19·0	21·5	27·2	32·7	35·6	38·3	41·1	18. 13. 27·18		27·62	27·80	60·18		....	
	12	θ Aquilæ	E	13·2	15·9	18·8	21·4	27·0	32·5	35·4	38·0	41·0	20. 3. 26·99		27·45	28·16	60·71	58·72	....	
	13	a^3 Capricorni....	E	..	29·7	32·6	35·3	41·1	46·8	49·6	52·4	..	20. 9. 41·03		41·38	42·04	60·66	[2·34]	....	
	14	☽ 2 L.....	E	..	3·5	6·4	9·1	15·1	21·2	24·2	27·1	..	20. 21. 15·19		15·51				20. 21. 12·26	
	15	ε Delphini	E	..	..	..	46·2	51·7	57·4	0·4	..	6·9	20. 25. 51·79		52·37	53·07	60·70		....	
May 24	16	Polaris S.P. (E&E)	S	6·0	2·0	54·0	48·0	33·0	..	..	..	..	13. 9. 34·11	[−1·90]	7·10	11·23	64·13	61·12	1. 10. 9·48	+ 6·13
	17	Spica	S	56·6	59·4	2·4	5·0	10·8	16·6	19·4	22·0	24·8	13. 17. 10·75		11·02	13·35	62·33	[2·31]	13. 18. 13·42	− 2·04
	18	ζ Virginis	S	40·3	43·2	46·0	48·7	54·2	59·7	2·5	5·3	7·9	13. 26. 54·17		54·55	56·98	62·43		13. 27. 56·96	− 1·92
	19	*f* Boötis	S	0·1	3·1	6·0	9·0	14·9	20·7	23·7	26·5	29·7	14. 19. 14·83	+3·04	15·61	18·15	62·54		14. 20. 18·11	− 1·92
	20	Piazzi XIV. 150.	S	15·3	18·8	22·0	25·3	32·2	39·0	42·4	45·7	48·9	14. 34. 52·14		32·30				14. 35. 34·82	− 2·94
	21	Saturn 1 L.....	S	1·3	4·4	7·1	10·0	15·8	21·5	24·3	27·2	30·1	15. 11. 15·71							
	22	Saturn 2 L.....	S	3·0	5·6	8·7	11·5	17·2	22·9	25·7	28·6	31·6	15. 11. 17·17		16·83				15. 12. 19·41	
	23	ζ¹ Libræ	S	30·7	33·7	36·6	39·3	45·2	50·9	53·9	56·7	59·5	15. 19. 45·14		45·52	48·10	62·58		15. 20. 48·11	− 2·52
	24	α Coronæ	S	46·6	49·7	52·7	55·8	2·0	8·2	11·3	14·4	17·4	15. 28. 1·98		2·88	5·52	62·64		15. 29. 5·49	− 2·06
	25	50 Libræ	S	22·2	25·1	27·9	30·7	36·2	42·0	44·8	47·5	50·3	15. 52. 36·27		36·73				15. 53. 39·38	− 2·41
	26	43 Serpentis	S	56·2	59·2	2·0	4·7	10·0	15·7	18·3	21·2	23·9	15. 56. 10·11		10·72				15. 57. 13·37	− 2·24
	27	κ Herculis	S	..	51·6	54·5	57·3	3·5	..	..	..	..	16. 1. 3·21		3·96				16. 2. 6·62	− 2·15
	28	Bradley 2050....	S	..	..	..	..	..	9·4	12·3	15·0	18·1	16. 1. 3·52		4·27				16. 2. 6·93	− 2·15
	29	c^1 Scorpii	S	47·5	50·8	53·8	56·9	3·2	9·5	12·5	15·7	18·9	16. 3. 3·17		3·41				16. 4. 6·08	− 2·84
	30	ε Aquilæ	D	19·4	22·3	25·0	27·9	33·6	39·4	42·2	45·0	47·8	18. 52. 33·59		34·31	37·12	62·81	61·03†	....	
	31	ζ Aquilæ	D	2·0	4·8	7·6	10·4	16·1	21·9	24·9	27·5	30·3	18. 58. 16·13		16·84	19·75	62·91		....	
	32	Polaris ....(E&E)	P	..	..	..	49·0	..	18·0	12·0	5·0	59·0	1. 8. 32·05		6·24	11·53	65·29		1. 10. 7·38	+ 5·83
May 26	33	ζ Cygni	E	53·6	56·8	0·0	3·2	..	15·9	19·1	22·2	25·4	21. 6. 9·49		10·43	18·20	67·77	65·54†	....	
	34	α Equulei.....	E	49·5	52·4	55·3	57·9	3·4	9·0	12·0	14·6	17·4	21. 8. 3·47		4·07	11·88	67·81	[2·57]	....	
May 27	35	☉ 1 L.....	C	35·1	38·2	41·2	44·1	50·0	56·1	59·1	2·0	5·0	4. 12. 50·06	−0·31	50·40			68·05	4. 15. 6·93	
	36	β Canum Venat..	C	57·8	1·7	5·4	9·2	16·5	24·0	27·7	31·4	35·2	12. 27. 16·50	(+7·48)	17·10			8·05	12. 27. 26·48	− 1·22
	37	ρ Virginis.....	C	47·0	49·8	52·6	55·4	1·1	6·7	9·6	12·4	15·2	12. 35. 1·06	[−3·01]	1·30			[2·57]	12. 35. 10·70	− 1·55
	38	ε Virginis.....	C	11·2	14·1	16·9	19·7	25·3	31·0	33·8	36·6	39·4	12. 55. 25·30		25·55	34·99	9·44		12. 55. 34·98	− 1·63
	39	31 Cassiopeiæ S.P.	C	57·0	4·3	11·6	18·9	33·8	..	..	..	..	13. 1. 33·94		32·86				1. 1. 42·31	− 0·60
	40	32 Cassiopeiæ S.P.	C	23·6	29·9	36·0	42·5	55·4	..	..	..	..	13. 2. 55·41		54·53				1. 3. 3·98	− 0·58
	41	Polaris S.P. (E&E)	C	..	..	..	35·0	23·0	..	2·0	..	48·0	13. 10. 23·31		3·23	13·06	9·83		....	
	42	35 Cass. S.P. (1st Star)	C	..	39·2	45·4	51·9	4·5	16·9	23·3	29·6	..	13. 12. 4·48		3·63				1. 12. 13·09	− 0·53
	43	35 Cass. S.P. (2d Star)	C	..	40·6	46·8	53·4	6·1	18·3	24·6	31·0	..	13. 12. 5·91		5·06				1. 12. 14·52	− 0·53
	44	Spica	C	49·7	52·7	55·4	58·2	3·8	9·5	12·3	15·1	17·9	13. 18. 3·82		3·86	13·34	9·48		13. 18. 13·34	− 2·03
	45	Piazzi XIII. 112.	C	46·2	49·4	52·5	55·8	2·1	8·4	11·7	14·6	18·0	13. 25. 2·05		1·90				13. 25. 11·39	− 2·45
	46	*i* Centauri	C	45·3	48·4	51·7	55·2	1·6	8·2	11·5	14·6	18·0	13. 38. 1·57		1·37				13. 38. 10·88	− 2·60

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, $31^r{\cdot}200$; from May 27, ☉, $31^r{\cdot}400$.
Corrections for passage of Semidiameter, Nos. 14 and 35, $-63^s{\cdot}96$: and $+68^s{\cdot}03$.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
May 27^d. 0^h. After the transit of the Sun, the Transit-Clock was put forward 1^m.
May 24. The azimuthal error by Polaris S.P. and Polaris, allowing $0^s{\cdot}85$ for clock-rate and change of R.A.
May 27. The azimuthal error by tabular places of Polaris S.P. and Groombridge 2283 (Carrington 2316), allowing $0^s{\cdot}20$ for clock-rate.

4, 16. Very tremulous.
32. Tremulous; very cloudy.
14. Correction to R.A. on true Meridian, $+0^s{\cdot}01$.
21, 22. Unsteady. No observation of N.P.D. was made.
35. Very cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
May 29	1	7 Sagittarii	E	14·8	17·9	21·0	24·0	29·9	36·1	39·1	42·1	45·2	17. 54. 29·98	−0·31	29·93			13·07	17. 54. 44·79	− 2·61
	2	Polaris ....(E&E)	P	..	..	..	..	44·0	31·0	24·0	17·0	10·0	1. 9. 43·75	(+5·77) [−1·93]	58·63	14·85	16·22	[2·41]	....	
May 30	3	Saturn 1 L.....	JC	..	9·0	11·9	14·6	20·4	26·3	29·4	31·9	..	15. 10. 20·46		21·12			15·20	15. 10. 37·90	
	4	Saturn 2 L.....	JC	..	10·4	13·2	16·0	..	27·4	30·4	33·2	..	15. 10. 21·73					[2·51]		
	5	μ^1 Boötis	JC	..	..	..	..	13·0	19·9	23·4	26·9	30·4	15. 19. 12·88		13·29				15. 19. 30·08	− 2·03
	6	ζ^1 Libræ	JC	16·8	19·6	22·6	25·5	31·3	37·1	39·9	42·9	45·6	15. 20. 31·23		31·24	48·13	16·89		....	
	7	Groom. 2283(E&E)	JC	..	..	..	..	..	30·0	39·5	49·0	58·0	15. 21. 7·49		16·82				....	
	8	α Coronæ	JC	32·9	36·1	39·2	42·2	48·4	54·6	57·8	1·0	4·0	15. 28. 48·43		48·75	5·54	16·79		....	
	9	Groom. 750 S.P.(E&E)	JC	..	..	..	..	25·0	29·5	4·0	36·5	9·5	15. 55. 24·72		20·51				....	
	10	Bradley 2048....	JC	43·2	46·2	49·0	51·8	57·4	3·0	5·8	8·6	11·3	16. 1. 57·33		57·51				16. 2. 14·38	− 2·25
	11	c^1 Scorpii	JC	33·5	36·7	39·8	43·0	49·1	55·6	58·7	1·9	5·0	16. 3. 49·22		49·14				16. 4. 6·01	− 2·89
	12	9 Herculis	JC	12·0	14·9	17·6	20·5	25·8	31·4	34·4	37·1	39·8	16. 6. 25·91		26·07				16. 6. 42·95	− 2·29
	13	19 Scorpii	JC	9·1	12·1	15·2	18·2	24·1	30·2	33·1	36·3	39·2	16. 12. 24·14		24·09				16. 12. 40·98	− 2·78
	14	λ Ophiuchi.....	JC	..	..	..	52·1	57·7	3·3	6·1	8·8	11·6	16. 23. 57·71		57·85	14·76	16·91		....	
	15	B. F. 2272.....	JC	2·1	5·2	8·0	11·2	17·1	23·1	26·1	29·0	32·0	16. 25. 17·06		17·34				16. 25. 34·25	− 2·20
	16	5 Camelopar. S.P.	JC	..	..	39·7	44·4	54·3	3·7	8·9	..	..	16. 43. 54·25		53·88				4. 44. 10·82	+ 0·45
	17	24 Ophiuchi.....	JC	..	..	..	26·6	32·6	38·7	41·8	44·8	47·8	16. 48. 32·68		32·64				16. 48. 49·59	− 2·74
	18	k Scorpii	JC	..	..	..	..	..	57·6	1·0	..	7·4	16. 55. 50·85		50·71				16. 56. 7·68	− 3·04
	19	e Herculis	JC	32·6	36·1	39·4	43·0	49·9	57·0	0·6	4·0	7·4	17. 12. 49·96		50·37				17. 13. 7·37	− 2·27
	20	Groombridge 2435	JC	48·6	52·4	55·9	59·6	6·6	14·0	17·6	21·2	24·8	17. 17. 6·70		7·14				17. 17. 24·14	− 2·29
	21	58 Ophiuchi.....	JC	..	..	4·4	7·4	13·3	19·3	22·1	..	..	17. 35. 13·27		13·24				17. 35. 30·28	− 2·63
	22	β Ophiuchi.....	JC	25·4	28·4	31·1	33·7	39·3	45·0	47·6	50·4	53·1	17. 36. 39·30		39·46	56·42	16·96		....	
	23	30 Camelop. S.P..	JC	49·9	55·1	0·4	5·9	16·4	27·1	32·2	37·9	43·4	17. 40. 16·54		16·09				5. 40. 33·14	+ 0·70
	24	z Herculis	JC	..	..	7·0	11·1	19·4	28·0	32·1	..	..	17. 46. 19·37		19·92				17. 46. 36·97	− 2·43
May 31	25	⊙ 1 L.	C	41·9	45·0	47·9	50·9	56·8	3·0	6·0	8·9	11·8	4. 29. 56·88		5·46			17·71	4. 31. 23·65	
	26	⊙ 2 L.....	C	58·6	1·4	4·6	7·6	..	..	..	..	..	4. 32. 13·48					[2·55]		
	27	ζ Virginis	C	23·9	26·7	29·4	32·2	37·6	43·2	46·1	48·8	51·5	13. 27. 37·68		37·80	56·95	19·15		....	
	28	m Virginis	C	6·9	9·7	12·4	15·3	20·8	26·4	29·3	32·1	34·9	13. 34. 20·84		20·91	40·03	19·12		....	
	29	51 Libræ	C	32·4	35·2	38·0	..	..	..	..	58·0	0·5	15. 56. 46·68		46·72				15. 57. 6·12	− 2·51
	30	Bradley 2048....	C	40·8	43·7	46·4	49·2	54·7	0·4	3·3	6·0	8·9	16. 1. 54·79		54·97				16. 2. 14·38	− 2·26
	31	9 Herculis	C	9·4	12·2	15·1	17·8	23·4	29·0	31·8	34·5	37·3	16. 6. 23·36		23·52				16. 6. 42·94	− 2·30
	32	B. F. 2244	C	45·9	48·7	51·8	54·8	0·6	6·7	9·6	12·7	15·6	16. 14. 0·69		0·96				16. 14. 20·39	− 2·19
	33	γ Herculis.....	C	31·1	34·1	37·0	39·9	45·7	51·7	54·5	57·5	0·4	16. 15. 45·74		46·00	5·45	19·45		....	
	34	η^1 Draconis.....	C	25·0	31·1	36·9	42·6	54·4	..	..	..	..	16. 21. 54·34		55·16				16. 22. 14·61	− 2·63
	35	B. F. 2272	C	59·5	2·6	5·7	8·6	14·6	20·6	23·6	26·4	29·6	16. 25. 14·55		14·83				16. 25. 34·28	− 2·20
	36	Groombridge 2376	C	28·2	32·0	35·6	39·4	46·9	54·3	58·2	1·9	5·7	16. 42. 46·87		47·33				16. 43. 6·81	− 2·28
	37	51 Herculis	C	41·8	44·8	47·9	51·0	57·1	3·1	6·0	9·2	12·2	16. 45. 56·98		57·28				16. 46. 16·77	− 2·22
	38	Polaris ....(E&E)	HC	..	..	..	55·0	40·0	27·0	19·5	..	7·5	1. 9. 39·99	+0·37	53·91	16·54	22·63		....	
	39	α Arietis.....	E	..	..	..	..	20·0	26·1	29·1	32·0	35·2	1. 59. 20·05	[−0·22]	20·44	41·10	20·66	20·51	1. 59. 41·16	− 0·27
	40	Venus 2 L.....	E	..	38·8	41·7	44·5	50·4	55·9	58·8	1·7	..	2. 31. 50·22		50·55			[2·55]	2. 32. 10·88	
June 1	41	⊙ 1 L.....	E	..	47·8	50·4	53·4	59·3	5·4	8·5	11·4	..	4. 33. 59·42		8·18				4. 35. 29·18	
	42	⊙ 2 L.	E	..	4·3	7·2	10·2	16·1	22·2	25·2	28·1	..	4. 36. 16·15							
	43	ζ Virginis.....	E	..	23·6	26·4	29·1	34·7	40·4	43·1	45·7	..	13. 27. 34·67		34·92	56·94	22·02		13. 27. 56·86	− 1·88
	44	Groombridge 2053	E	..	..	..	17·5	45·7	14·7	..	..	..	13. 41. 45·84		47·77				13. 42. 9·73	− 1·89
	45	Piazzi XIII. 263.	E	..	..	..	..	54·7	43·4	7·0	31·0	55·4	13. 45. 54·51		57·68				13. 46. 19·65	− 2·55
	46	49 Cassiopeiæ S.P.	E	36·6	..	59·7	10·6	32·9	54·6	6·0	..	..	13. 52. 32·70		31·62				1. 52. 53·61	− 0·16

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S. T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^r{\cdot}400$.

Correction for passage of Semidiameter, No. 40, $-0^s{\cdot}45$.

May 31, Polaris, to June 1. The azimuthal error used is the mean of those ($-1''{\cdot}44$ and $+1''{\cdot}01$) determined by tabular places of Polaris and α Arietis on May 31^d, and of α^2 Libræ and Groombridge 2283 (Carrington 2316) on June 1, allowing $0^s{\cdot}09$ and $0^s{\cdot}07$ for clock-rate in each case respectively.

2. Tremulous : cloudy.
28, 29. Very faint ; cloudy.
3, 4. Faint : cloudy.
34. Very faint.
6. Faint.
38. Very tremulous.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
June 1	1	54 Cassiopeiæ S.P.	E	..	..	35·7	4·0	21·4	38·2	46·4	..	..	13. 57. 21·23	+0·37	20·47			20·51	1. 57. 42·46	— 0·29
	2	3 Ursæ Minoris..	E	..	..	1·5	12·2	33·6	55·4	6·5	..	..	14. 5. 33·72	(+5·77)	35·24			[2·55]	14. 5. 57·25	— 2·08
	3	Arcturus	E	0·5	3·4	6·3	9·2	15·2	21·0	23·9	27·0	29·9	14. 9. 15·13	[−0·22]	15·50	37·57	22·07		14. 9. 37·51	— 1·81
	4	5 Ursæ Minoris..	E	..	..	..	6·5	29·4	53·3	..	..	..	14. 27. 29·62		31·24				14. 27. 53·28	— 2·48
	5	Piazzi XIV. 150 .	E	55·7	59·3	2·5	5·9	12·6	19·3	22·8	26·2	29·5	14. 35. 12·62		12·66				14. 35. 34·72	— 2·93
	6	ε Boötis	E	..	37·7	40·8	44·1	50·1	56·4	59·6	2·6	..	14. 38. 50·15		50·57	12·62	22·05		14. 39. 12·64	— 1·90
	7	α^2 Libræ.....	E	..	0·4	3·1	6·0	11·6	17·5	20·3	23·2	..	14. 43. 11·70		11·88	33·90	22·02		14. 43. 33·95	— 2·44
	8	Piazzi XIV. 204 .	E	..	..	..	..	16·1	22·8	26·1	29·4	32·8	14. 47. 16·14		16·19				14. 47. 38·27	— 2·93
	9	B. F. 2051	E	41·3	44·9	48·6	52·1	59·4	6·6	10·4	14·0	17·6	14. 53. 59·39		59·92				14. 54. 22·01	— 1·93
	10	Saturn 1 L.	E	..	31·0	33·8	36·6	42·3	48·1	51·1	53·9	..	15. 9. 42·36		} 43·20				15. 10. 5·31	
	11	Saturn 2 L.	E	29·3	32·2	35·3	38·0	43·6	49·5	52·4	55·2	57·9	15. 9. 43·68							
	12	Groom.2283(E&E)	E	12·0	24·5	34·0	43·0	..	..	..	..	..	15. 21. 3·34		12·13				....	
June 3	13	ρ Boötis	D	13·3	16·6	19·7	22·9	29·4	35·8	39·0	42·3	45·4	14. 25. 29·34	+0·14	29·79	7·71	37·92	36·00	14. 26. 7·71	— 1·82
	14	α^2 Boötis.....	D	18·7	21·8	25·0	28·0	34·4	40·6	43·8	46·8	50·0	14. 38. 34·31	(+6·45)	34·73	12·61	37·88	[3·18]	14. 39. 12·67	— 1·89
	15	α Libræ	D	41·6	44·5	47·3	50·2	55·9	1·6	4·4	7·3	10·2	14. 42. 55·86	[−1·36]	55·96	33·90	37·94		14. 43. 33·91	— 2·44
	16	Saturn 1 L.	D	40·5	43·2	46·1	49·0	54·8	0·4	3·3	6·1	9·0	15. 8. 54·68		} 55·44				15. 9. 33·45	
	17	Saturn 2 L.	D	41·6	44·6	47·4	50·4	56·0	1·7	4·6	7·6	10·4	15. 8. 56·00							
	18	Pallas	D	3·5	6·8	9·9	12·9	19·3	25·2	28·4	31·4	34·6	15. 15. 19·08		19·49				15. 15. 57·51	
	19	α Coronæ	D	..	14·7	17·8	21·0	27·1	33·3	36·4	39·4	..	15. 28. 27·06		27·48	5·54	38·06		15. 29. 5·52	— 2·08
	20	Ceres	D	15·4	18·3	21·1	24·0	29·5	35·3	38·0	41·0	43·8	15. 37. 29·57		29·69				15. 38. 7·76	
	21	Hesperia.	D	36·9	39·7	42·6	45·4	50·5	..	..	..	..	15. 39. 50·85		50·99				15. 40. 29·06	
	22	λ Coronæ	D	..	..	..	13·9	21·0	28·0	31·7	35·1	38·4	15. 50. 20·93		21·45				15. 50. 59·55	— 2·12
	23	q Herculis	D	..	..	..	5·0	10·6	16·6	19·4	22·4	25·3	16. 2. 10·72		11·06				16. 2. 49·18	— 2·21
	24	49 Serp. (1st Star)	D	16·0	..	21·7	..	30·1	..	38·6	..	44·4	16. 6. 30·14		30·45				16. 7. 8·58	— 2·25
	25	49 Serp. (2d Star)	D	..	19·0	..	24·8	..	36·1	..	41·8	..	16. 6. 30·37		30·68				16. 7. 8·81	— 2·25
	26	γ Herculis	D	12·3	15·3	18·2	21·1	27·0	32·9	35·7	38·6	41·6	16. 15. 26·93		27·28	5·47	38·19		16. 16. 5·45	— 2·22
June 4	27	⊙ 1 L.....	P	43·5	46·4	49·5	52·6	58·6	4·6	7·7	10·5	13·3	4. 45. 58·49	(+7·07)	} 7·35			39·39	4. 47. 47·38	
	28	⊙ 2 L.....	P	0·4	3·4	6·5	9·5	15·3	21·4	24·4	27·4	30·4	4. 48. 15·38					[3·18]		
	29	Capella.....	P	51·2	55·3	59·2	3·4	11·1	19·3	23·1	27·2	31·0	5. 6. 11·17		11·85				5. 6. 51·92	+ 0·25
	30	Rigel	P	..	..	..	..	28·3	33·7	36·8	39·4	42·3	5. 7. 28·24		28·41	8·40	39·99		5. 8. 8·48	+ 0·38
	31	ι Hydræ.....	P	49·4	52·2	55·0	57·9	3·4	8·9	11·7	14·6	17·3	8. 39. 3·35		3·64	44·13	40·49		8. 39. 44·17	— 0·27
	32	ι Ursæ Majoris ..	P	3·2	7·3	11·4	15·7	24·0	32·4	36·7	40·5	45·0	8. 49. 23·98		24·70				8. 50. 5·26	+ 0·16
	33	α Ursæ Majoris ..	P	..	..	30·3	36·3	48·2	0·4	6·2	..	..	10. 54. 48·22		49·30				10. 55. 30·14	— 0·07
	34	ψ Boötis.....	P	49·4	52·4	55·4	58·7	4·8	11·1	14·4	17·5	20·7	14. 58. 4·90		5·36	46·80	41·44		14. 58. 46·73	— 1·96
	35	Saturn 1 L.	P	21·1	24·2	..	30·0	35·8	42·4	..	47·2	49·9	15. 8. 35·77		} 36·46				15. 9. 17·86	
	36	Saturn 2 L.	P	22·4	25·5	..	31·3	36·9	42·7	..	48·4	51·4	15. 8. 36·91							
	37	Pallas	P	22·0	25·2	28·2	31·2	37·4	43·5	..	..	53·0	15. 14. 37·42		37·87				15. 15. 19·29	
	38	Groom.2283(E&E)	P	..	..	..	..	..	1·5	..	20·0	31·0	15. 20. 39·12		50·46				....	
	39	Groombridge 2253	P	37·4	41·2	45·1	48·7	56·4	4·1	8·0	11·6	15·5	15. 29. 56·41		57·05				15. 30. 38·49	— 2·07
	40	Ceres	P	22·0	24·9	27·7	30·4	36·2	42·0	44·7	47·5	50·4	15. 36. 36·17		36·31				15. 37. 17·76	
	41	Piazzi XV. 239..	P	5·9	9·3	12·8	16·3	23·1	30·0	33·5	37·0	40·4	15. 53. 23·12		23·68				15. 54. 5·18	— 2·14
	42	Piazzi XV. 266..	P	28·9	32·4	35·8	39·0	46·1	53·1	56·6	0·2	3·4	15. 57. 46·14		46·70				15. 58. 28·21	— 2·16
	43	c^1 Scorpii	P	9·0	12·0	15·4	18·3	24·7	30·8	34·0	37·0	40·2	16. 3. 24·57		24·58				16. 4. 6·10	— 2·93
	44	49 Serp. (1st Star)	P	12·7	15·4	18·2	..	26·7	..	35·2	38·0	41·1	16. 6. 26·73		27·07				16. 7. 8·59	— 2·25
	45	γ Herculis	P	9·0	11·7	14·8	17·7	23·6	29·5	32·3	35·3	38·1	16. 15. 23·53		23·92	5·48	41·56		16. 16. 5·47	— 2·23
	46	η Ursæ Minoris ..	P	..	..	..	22·8	45·7	8·7	20·4	..	..	16. 20. 45·66		47·67				16. 21. 29·23	— 3·85
	47	B. F. 2272.....	P	37·4	40·4	43·4	46·3	52·2	58·4	1·4	4·2	7·4	16. 24. 52·32		52·73				16. 25. 34·30	— 2·23

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·400.

June 3d. 0h. The western contact-springs of the Transit-Clock were cleaned, in doing which the clock was accidentally stopped 10s.

June 3 to June 9, Arcturus. The azimuthal error used is that determined on June 4, by tabular places of ψ Boötis and Groombridge 2283 (Carrington 2316), allowing 0r·05 for clock-rate.

16, 17. A very bad image.
31, 37. Faint.
22. Cloudy.
23, 26. Very faint; cloudy.
35, 36. Very cloudy; very faint.
24, 25. A double star: the components of the same magnitude.
44. Very cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
June 11	1	Ceres	E	37·1	..	42·8	45·7	51·4	57·1	0·0	..	5·7	15. 30. 51·38	−0·12	51·68			60·97	15. 31. 54·67	
	2	Piazzi XV. 266	E	..	10·8	14·2	17·8	24·4	31·6	35·0	38·4	..	15. 57. 24·55	(+5·36)	25·03			[3·13]	15. 58. 28·07	− 2·15
	3	Var. (R) Herculis	E	59·3	2·4	5·0	8·0	13·8	19·8	22·8	25·5	28·4	15. 59. 13·86	[+2·53]	14·27				16. 0. 17·32	− 2·22
	4	γ Herculis	E	47·2	50·3	53·2	56·1	2·0	7·9	10·9	13·7	16·7	16. 15. 1·97		2·38	5·50	63·12		16. 16. 5·47	− 2·25
	5	Thalia	E	54·6	57·8	.	3·5	9·6	..	..	21·7	24·7	16. 25. 9·62		9·89				16. 26. 13·00	
	6	Lacaille 6950	E	49·1	52·7	55·9	59·1	5·6	12·2	15·4	18·8	21·9	16. 34. 5·60		5·83				16. 35. 8·96	− 3·12
	7	ε Scorpii	E	..	19·7	22·9	26·4	32·9	39·6	43·0	46·3	..	16. 40. 32·93		33·15				16. 41. 36·29	− 3·18
	8	Var. (S) Herculis	E	35·1	37·9	40·8	43·7	49·4	55·3	58·0	0·9	3·8	16. 44. 49·40		49·79				16. 45. 52·94	− 2·34
	9	μ Herculis	E	58·4	1·5	4·8	7·6	13·9	20·3	23·4	26·4	29·6	17. 40. 13·96		14·40	17·63	63·23		17. 41. 17·69	− 2·37
	10	89 Herculis	E	46·7	49·6	52·8	55·9	2·0	8·2	11·4	14·4	17·4	17. 49. 2·02		2·46	5·69	63·23		17. 50. 5·75	− 2·38
	11	β Andromedæ	D	57·2	0·6	3·9	7·3	14·0	20·8	24·3	27·6	31·0	1. 1. 14·04		14·51	18·54	64·03	63·91	1. 2. 18·56	
	12	Polaris (E&E)	D	..	..	38·0	30·5	14·0	..	54·0	46·5	..	1. 9. 14·30		21·48	25·13	63·65	[3·23]	1. 10. 25·54	− 7·77
	13	Venus 2 L.	D	1·0	4·0	6·8	9·9	15·6	21·5	24·3	27·3	30·1	3. 23. 15·58		15·98				3. 24. 19·91	
															31·83	37·50	5·67	3·77†	....	
June 12	14	Arcturus	JC	16·7	19·7	22·5	25·5	31·4	37·3	40·4	43·3	46·2	14. 9. 31·42		59·35	5·50	6·15	3·91	16. 16. 5·44	− 2·25
	15	γ Herculis	D	44·4	47·1	50·1	53·2	58·9	5·0	7·8	10·7	13·6	16. 15. 58·94		12·24	18·31	6·07		16. 21. 18·35	− 2·95
	16	Antares	D	56·7	59·8	2·8	5·8	12·0	18·1	21·1	24·4	27·4	16. 21. 11·98		8·67	14·85	6·18		16. 24. 14·79	− 2·42
	17	λ Ophiuchi	D	54·7	57·4	0·0	2·7	8·3	13·9	16·7	19·3	22·1	16. 24. 8·31		46·76	52·83	6·07		16. 29. 52·89	− 2·61
	18	ζ Ophiuchi	D	32·4	35·3	38·1	40·8	46·4	52·2	55·0	57·6	0·5	16. 29. 46·45		12·49	18·64	6·15		16. 36. 18·63	− 2·25
	19	ζ Herculis	D	55·6	59·2	2·4	5·5	12·1	18·4	21·8	25·1	28·4	16. 36. 12·03							
															15·48	24·77	9·29		....	
June 13	20	κ Ophiuchi	C	1·1	3·9	6·7	9·4	15·2	20·7	23·5	26·3	29·0	16. 51. 15·06	(+6·18)	27·92	37·42	9·50		....	
	21	α Herculis	C	13·2	16·0	19·0	21·8	27·5	33·3	36·1	..	..	17. 8. 27·48							
															35·74	48·15	12·41	10·48	15. 20. 48·13	− 2·57
June 14	22	ζ1 Libræ	JC	21·0	24·0	26·9	29·7	35·4	41·3	44·2	46·8	49·8	15. 20. 35·43	(+7·78)	55·55			[2·99]	15. 28. 7·96	− 2·56
	23	γ Libræ	JC	41·0	43·9	46·8	49·6	55·2	1·0	3·8	6·5	9·5	15. 27. 55·23	[+1·78]	26·68				15. 48. 42·71	
	24	) 1 L.	JC	..	14·5	17·7	20·4	26·4	32·3	35·2	38·4	..	15. 47. 26·37		32·72	45·15	12·43		15. 57. 45·18	− 2·74
	25	β1 Scorpii	JC	17·8	20·7	23·5	26·6	32·4	38·3	41·3	44·3	47·2	15. 57. 32·43		6·45				16. 4. 18·93	− 2·75
	26	ν Scorpii	JC	51·5	54·5	57·4	0·4	6·0	12·0	15·0	18·0	20·8	16. 4. 6·15		9·76				16. 16. 22·26	− 2·79
	27	ψ Ophiuchi	JC	54·7	57·8	0·7	3·6	9·5	15·5	18·4	21·2	24·1	16. 16. 9·47		9·56				16. 38. 22·11	− 2·99
	28	B.A.C. 5615	JC	..	..	..	2·1	8·9	15·9	19·2	22·7	26·2	16. 38. 8·89		40·37				16. 45. 52·93	− 2·35
	29	Var. (S) Herculis	JC	25·5	28·4	31·3	34·2	39·8	45·7	48·6	51·4	54·2	16. 45. 39·87		12·20	24·77	12·57		16. 51. 24·78	− 2·38
	30	κ Ophiuchi	JC	57·6	0·5	3·4	6·1	11·7	17·4	20·2	23·1	25·8	16. 51. 11·73		35·14	47·85	12·71	10·63†	....	
	31	η Ophiuchi	K	20·4	23·4	26·4	29·1	34·9	40·6	43·4	46·3	49·2	17. 2. 34·83		24·63	37·43	12·80		....	
	32	α Herculis	K	9·9	12·7	15·6	18·4	24·2	29·8	32·9	35·6	38·4	17. 8. 24·14		54·77			10·48	17. 13. 7·40	− 2·39
	33	e Herculis	JC	..	..	..	47·4	54·0	1·2	4·6	8·0	11·4	17. 12. 54·10		17·79				17. 35. 30·46	− 2·85
	34	58 Ophiuchi	JC	2·7	5·6	8·7	11·6	17·4	23·4	26·5	29·5	32·5	17. 35. 17·51		4·97	17·65	12·68		17. 41. 17·66	− 2·39
	35	μ Herculis	JC	48·8	51·9	55·1	58·1	4·4	10·6	13·8	17·1	20·0	17. 41. 4·39		41·96	54·76	12·80		....	
	36	Ceph. 51 S.P. (E&E)	JC	..	..	..	..	47·5	42·5	..	37·0	36·0	18. 36. 48·27							
															2·72	20·91	18·19	16·27†	....	
June 16	37	γ Serpentis	JC	47·8	50·8	53·6	56·5	2·2	8·1	10·7	13·7	16·7	15. 50. 2·21		27·04	45·15	18·11	[1·85]	....	
	38	β1 Scorpii	JC	12·1	15·1	17·9	21·0	26·8	32·7	35·5	38·5	41·4	15. 57. 26·75		19·12	37·44	18·32	16·27	....	
	39	α Herculis	D	4·4	7·3	10·1	13·0	18·6	24·3	27·3	30·1	32·9	17. 8. 18·63		5·32				17. 13. 23·63	− 2·71
	40	ν Serpentis	D	50·8	53·7	56·6	59·4	5·0	10·6	13·5	16·4	19·2	17. 13. 4·99		39·17	57·46	18·29		....	
	41	σ Ophiuchi	D	24·9	27·7	30·6	33·3	38·8	44·4	47·0	49·8	52·4	17. 19. 38·73		12·01				17. 30. 34·64	
	42	) 1 L.	D	56·6	59·9	2·8	5·9	11·7	17·7	20·7	23·7	26·6	17. 29. 11·71		38·25	56·63	18·38		....	
	43	β Ophiuchi	D	24·0	26·7	29·5	32·4	37·9	43·4	46·1	49·0	51·6	17. 36. 37·81							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·400.

Corrections for passage of Semidiameter, Nos. 13, 24, and 42, −0s·44: +63s·58: and +64s·28.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

June 12d. 0h. The Transit-Clock was put forward 1m.

June 14 to 16. The azimuthal error used is that determined on June 14 by tabular places of κ Ophiuchi and Cephei 51 S.P., allowing 0s·22 for clock-rate.

24. The image very bad.

24, 42. Correction to R.A. on true Meridian, +0s·01.

28, 37. Cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
June 17	1	λ Ophiuchi	C	39·8	42·3	45·3	47·9	53·4	58·8	1·8	4·6	7·3	16. 23. 53·44	−0·35	53·78	14·87	21·09	18·98	16. 24. 14·74	− 2·44
	2	ϵ Herculis	C	36·8	40·0	43·2	46·4	..	59·4	2·6	5·8	9·0	16. 54. 52·86	(+ 7)	53·43	14·47	21·04	[2·90]	16. 55. 14·45	− 2·33
	3	*d* Herculis	C	6·0	9·2	12·5	15·8	22·4	29·2	32·4	35·8	39·1	16. 56. 22·45	[+ 8]	23·05				16. 56. 44·07	− 2·34
	4	Piazzi XVII. 3 ..	C	42·8	46·3	49·6	53·1	0·0	6·8	10·2	13·6	17·1	17. 2. 59·91		0·53				17. 3. 21·57	− 2·37
	5	ξ Ophiuchi.....	C	29·1	32·0	35·0	37·9	43·8	49·8	52·8	55·7	58·6	17. 12. 43·83		43·99				17. 13. 5·04	− 2·89
	6	*b* Ophiuchi.....	C	41·7	44·7	47·8	50·8	56·8	3·0	6·0	9·2	12·0	17. 17. 56·86		57·00				17. 18. 18·06	− 2·95
	7	*a* Ophiuchi	E	12·3	15·2	18·0	20·8	26·4	32·2	35·2	37·9	40·7	17. 28. 26·49		26·91	48·12	21·21	19·13†	....	
	8	β Ophiuchi	E	21·3	24·0	26·7	29·4	35·0	40·4	43·4	46·0	49·0	17. 36. 34·99		35·35	56·64	21·29		....	
	9	Piazzi XVII. 281	C	7·3	10·1	13·0	15·8	21·5	27·4	30·3	33·1	35·9	17. 48. 21·57		21·79			18·98	17. 48. 42·92	− 2·76
	10	89 Herculis	C	..	..	35·1	38·1	44·2	50·4	53·4	56·4	59·4	17. 49. 44·15		44·67	5·75	21·08		17. 50. 5·80	− 2·44
	11	72 Ophiuchi	C	..	32·4	35·1	38·0	..	..	..	..	..	18. 0. 43·54		43·94	5·12	21·18		18. 1. 5·09	− 2·48
	12	μ^1 Sagittarii	C	15·4	18·4	21·3	24·3	30·3	36·2	39·1	42·1	45·0	18. 5. 30·21		30·37	51·37	21·00		18. 5. 51·52	− 2·84
June 18	13	⊙ 1 L.....	JC	57·5	0·7	3·7	6·6	..	..	..	..	..	5. 44. 12·66		22·01			21·88	5. 45. 44·58	
	14	⊙ 2 L.....	JC	15·2	18·4	21·4	24·3	30·4	36·4	39·4	42·5	45·5	5. 46. 30·36							
June 21	15	δ Ophiuchi.....	D	38·4	41·0	43·8	46·6	52·1	57·7	0·4	3·2	5·9	16. 6. 52·09	(+8·48)	52·42	25·10	32·68	30·60	16. 7. 25·13	− 2·47
	16	γ Herculis	D	17·6	20·6	23·5	26·4	32·2	38·2	41·1	44·1	47·0	16. 15. 32·27		32·77	5·51	32·74	[3·15]	16. 16. 5·50	− 2·26
	17	Antares	D	30·0	33·2	36·3	39·4	45·6	51·7	54·8	57·8	0·8	16. 20. 45·48		45·61	18·34	32·73		16. 21. 18·35	− 2·98
	18	ϵ Herculis	D	24·9	28·2	31·3	34·6	41·0	47·6	50·8	54·0	57·2	16. 54. 41·03		41·64	14·48	32·84		16. 55. 14·46	− 2·34
	19	Piazzi XVII. 3 ..	D	31·1	34·6	37·9	41·3	48·0	55·0	58·4	1·9	5·3	17. 2. 48·12		48·79				17. 3. 21·62	− 2·37
	20	*a* Herculis	D	49·9	52·8	55·6	58·5	4·1	9·9	12·7	15·7	18·6	17. 8. 4·17		4·63	37·47	32·84		17. 8. 37·47	− 2·43
	21	Groombridge 2435	D	32·6	36·4	39·8	43·6	50·7	58·2	1·5	5·3	8·7	17. 16. 50·72		51·42				17. 17. 24·28	− 2·44
	22	Piazzi XVII. 196	D	8·9	12·2	15·6	18·8	25·1	31·6	34·9	38·1	41·3	17. 34. 25·13		25·74				17. 34. 58·65	− 2·45
	23	ξ Aquarii	HC	54·4	57·3	0·2	2·9	8·4	14·1	16·8	19·7	22·4	21. 30. 8·43		8·72	42·19	33·47	30·62	21. 30. 42·17	− 2·05
	24	γ Capricorni	HC	57·0	0·0	2·8	5·8	11·4	17·4	..	..	..	21. 32. 11·49		11·71			[3·15]	21. 32. 45·16	− 2·03
	25	ϵ Pegasi	HC	53·4	56·4	58·9	1·9	7·4	13·0	15·9	18·8	21·5	21. 37. 7·43		7·85	41·32	33·47		21. 37. 41·30	− 2·08
	26	☽ 2 L.	HC	18·1	21·1	24·0	26·7	32·5	38·6	41·4	44·3	47·2	21. 45. 32·63		32·89				21. 45. 3·04	
	27	*a* Aquarii.... ..	HC	11·4	14·1	16·9	19·7	25·3	30·7	33·4	36·2	39·0	21. 58. 25·16		25·50	58·99	33·49		21. 58. 58·99	− 1·92
	28	ι Pegasi	HC	2·2	5·2	8·2	11·3	17·4	23·4	26·4	29·6	32·6	22. 0. 17·33		17·87	51·34	33·47		22. 0. 51·37	− 2·12
	29	θ Aquarii.....	HC	2·8	5·7	8·5	11·2	16·7	22·4	25·3	28·0	30·8	22. 9. 16·79		17·08	50·62	33·54		22. 9. 50·60	− 1·83
June 22	30	⊙ 2 L.....	JC	41·0	44·3	47·1	50·2	56·3	2·1	5·4	8·3	11·3	6. 2. 56·19		56·72			33·86	6. 2. 22·45	
	31	Procyon	JC	31·1	..	36·6	39·3	45·1	50·8	53·4	..	58·7	7. 31. 44·98		45·37	20·33	34·96	[3·15]	7. 32. 20·22	+ 0·02
	32	Mercury, center .	JC	1·0	4·1	7·0	10·4	..	22·6	25·6	28·6	31·4	7. 37. 16·30		16·83				7. 37. 51·69	
	33	Saturn 1 L.....	JC	26·5	29·4	32·1	35·2	40·8	46·7	49·5	52·3	55·2	15. 4. 40·83		41·65				15. 5. 17·48	
	34	Saturn 2 L.....	JC	27·8	30·6	33·3	36·4	42·1	47·8	50·6	53·4	56·2	15. 4. 41·99							
	35	o^2 Libræ.....	JC	49·0	52·1	54·8	57·6	3·2	9·0	11·8	14·8	17·6	15. 15. 3·29		3·53	39·37	35·84		15. 15. 39·39	− 2·50
	36	ζ^1 Libræ.....	JC	..	..	3·4	6·2	12·0	18·0	20·8	23·7	26·5	15. 20. 12·07		12·30	48·14	35·84		15. 20. 48·17	− 2·56
	37	Groom. 750 S.P.(R&E)	JC	23·2	56·0	28·8	3·0	8·5	14·7	..	..	..	15. 55. 8·62		4·05				....	
	38	Piazzi XV. 266 ..	JC	34·1	37·8	41·2	44·7	51·6	58·6	2·0	5·4	8·7	15. 57. 51·53		52·20				15. 58. 28·15	− 2·11
	39	19 Ursæ Minoris.	JC	..	..	29·8	41·2	3·8	27·6	39·1	..	..	16. 14. 4·17		6·21				16. 14. 42·20	− 3·18
	40	ζ Herculis	JC	25·7	29·0	32·3	35·5	42·0	48·7	51·8	55·1	58·3	16. 35. 42·01		42·63	18·65	36·02		16. 36. 18·66	− 2·26
	41	Groombridge 2376	JC	..	..	..	22·4	29·8	37·5	41·4	45·0	48·7	16. 42. 29·93		30·67				16. 43. 6·71	− 2·32
	42	51 Herculis	JC	25·0	28·0	31·0	34·2	40·2	46·4	49·5	52·4	55·4	16. 45. 40·21		40·75				16. 46. 16·81	− 2·33
	43	*d* Herculis	JC	50·8	54·3	57·4	1·0	7·4	14·2	17·6	21·0	24·1	16. 56. 7·49		8·13				16. 56. 44·21	− 2·34
	44	*b* Ophiuchi.....	JC	26·7	29·5	32·6	35·6	41·6	47·7	50·7	53·9	56·8	17. 17. 41·65		41·80				17. 18. 17·92	− 2·99
	45	*a* Ophiuchi	JC	57·4	0·3	3·2	6·0	11·6	17·4	20·2	23·0	25·8	17. 28. 11·63		12·08	48·15	36·07		17. 28. 48·22	− 2·48

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, $31^r·400$.
Corrections for passage of Semidiameter, Nos. 26 and 30, $-63^s·34$: and $-68^s·92$.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.
June 17 to 22. The azimuthal error used is that determined on June 22 by tabular places of Groombridge 750 (Carrington 575) S.P. and *a* Ophiuchi, allowing $0^s·19$ for clock-rate.

2. The time at the 1st wire has also been used for the 1st wire of an Altazimuth observation, ☽ U.L., Face Left.
11, 13, 14. Very cloudy.
17, 21, 22. Cloudy.
24, 29. Very faint.
26. Correction to R.A. on true Meridian, $+0^s·01$.
28. Very tremulous.
31. Very faint and diffused.
32. A diffused patch of light; very faint.
33, 34. Faint; cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
July 12	1	γ Herculis	JC	48·2	51·2	54·0	56·9	2·9	8·8	11·7	14·6	17·6	16. 15. 2·86	−1·11	3·11	5·41	62·30	61·46	....	
	2	☽ 1 L.....	JC	42·4	45·3	48·3	51·2	57·1	3·1	6·0	9·0	11·9	16. 20. 57·12	(+6·23)	57·13			[1·16]	16. 23. 3·24	
	3	ζ Herculis	JC	..	..	6·3	9·5	15·9	22·5	25·7	29·2	32·4	16. 35. 16·00	[−1·13]	16·34	18·54	62·20		16. 36. 18·60	− 2·15
	4	σ Ophiuchi.....	E	..	..	..	..	54·9	0·6	3·4	6·1	8·9	17. 18. 54·99		55·14	57·54	62·40	61·53†	....	
	5	α Ophiuchi	E	31·4	34·3	37·2	40·0	45·6	51·2	54·3	57·2	59·8	17. 27. 45·65		45·85	48·18	62·33		....	
July 13	6	δ Ophiuchi	D	7·6	10·4	13·3	16·0	21·5	27·2	29·9	32·6	35·4	16. 6. 21·53		21·64	25·03	63·39	62·60†	....	
	7	γ Herculis	D	47·2	50·1	53·0	55·8	1·6	7·6	10·6	13·6	16·4	16. 15. 1·75		2·00	5·40	63·40	[1·19]	....	
	8	Antares	C	59·5	2·7	5·7	8·8	15·1	21·4	24·3	27·4	30·4	16. 20. 15·01		14·95	18·30	63·35	62·47	16. 21. 18·23	− 2·94
	9	Groombridge 2376	C	44·2	48·0	51·7	55·4	3·0	10·6	14·2	18·0	21·7	16. 42. 2·95		3·38				16. 43. 6·68	− 2·14
	10	Piazzi XVI. 232.	C	6·3	9·4	12·2	15·1	20·8	26·6	29·4	32·4	35·3	16. 47. 20·82		20·83				16. 48. 24·13	− 2·81
	11	κ Ophiuchi.....	C	..	..	..	15·7	21·3	27·0	29·8	32·6	35·3	16. 50. 21·32		21·51	24·78	63·27		16. 51. 24·82	− 2·39
	12	*d* Herculis	C	23·8	27·2	30·5	33·8	40·4	47·2	50·4	53·7	57·1	16. 55. 40·44		40·80				16. 56. 44·11	− 2·25
	13	η Ophiuchi.....	C	30·4	33·3	36·1	38·9	44·7	50·3	53·3	56·1	58·8	17. 1. 44·64		44·66	47·93	63·27		17. 2. 47·97	− 2·82
	14	☽ 1 L.....	C	34·0	37·0	39·9	42·9	48·7	54·8	57·8	0·9	3·8	17. 11. 48·84		48·84				17. 13. 56·36	
	15	σ Ophiuchi	C	40·2	43·0	45·7	48·4	54·0	59·5	2·3	5·1	7·8	17. 18. 53·98		54·13	57·54	63·41		17. 19. 57·46	− 2·57
	16	ξ Serpentis.....	C	..	..	..	..	57·2	3·0	6·0	8·7	11·6	17. 28. 57·25	+5·78	57·75				17. 30. 1·09	− 2·88
	17	W.B. XVII. 636.	C	9·0	11·9	14·6	17·4	22·8	28·9	31·7	34·4	37·1	17. 32. 23·07		23·58				17. 33. 26·92	− 2·85
	18	101 Herculis	C	53·0	56·0	58·8	2·0	7·7	13·7	16·6	19·6	22·4	18. 2. 7·73	−1·11	7·99				18. 3. 11·35	− 2·58
	19	Groombridge 2533	C	10·8	14·5	18·2	22·1	29·4	37·0	40·7	44·4	48·0	18. 10. 29·43		29·86				18. 11. 33·23	− 2·65
	20	106 Herculis	C	24·4	27·4	30·4	33·4	39·4	45·3	48·3	51·3	54·2	18. 13. 39·32		39·59				18. 14. 42·96	− 2·61
	21	δ Ursæ Min.(E&E)	C	..	..	..	..	..	..	..	26·5	13·0	18. 14. 19·08		24·30	28·31	64·01		....	
	22	Piazzi XVIII. 100	C	48·8	51·7	54·9	57·8	3·9	10·0	13·0	15·9	19·0	18. 23. 3·87		4·15				18. 24. 7·53	− 2·64
	23	α Lyræ.....	C	7·4	11·0	14·4	18·1	25·1	32·2	35·7	39·3	42·8	18. 31. 25·09		25·50	28·85	63·35		18. 32. 28·89	− 2·72
	24	Ceph.51 S.P.(E&E)	C	..	..	6·0	4·0	0·0	53·0	50·5	..	..	18. 35. 59·26		53·28	57·31	64·03		....	
	25	β^1 Lyræ	C	52·7	55·9	59·3	2·6	9·1	15·8	19·2	22·4	25·6	18. 44. 9·15		9·50	12·90	63·40		18. 45. 12·90	− 2·71
July 14	26	ψ Boötis.....	JC	26·2	29·4	32·4	35·5	41·6	48·0	51·1	54·2	57·4	14. 57. 41·74	[−0·54]	42·07	46·44	64·37	63·65†	....	
	27	α Coronæ	JC	45·0	48·0	51·3	54·3	0·6	6·9	9·9	13·0	16·0	15. 28. 0·54		0·86	5·27	64·41	[1·16]	....	
	28	ξ Serpentis.....	E	42·0	45·0	47·7	50·6	56·4	2·1	5·0	7·8	10·7	17. 28. 56·34		56·40			63·91	17. 30. 1·15	− 2·88
	29	ο Serpentis	E	40·2	43·2	46·0	48·8	54·5	0·3	2·9	5·8	8·7	17. 32. 54·47		54·54				17. 33. 59·30	− 2·84
	30	μ Herculis	E	57·0	0·0	..	6·4	12·6	19·0	..	25·2	28·4	17. 40. 12·64		12·97	17·72	64·75		....	
	31	89 Herculis	E	45·3	48·5	51·5	54·7	0·8	7·1	10·0	13·1	16·1	17. 49. 0·77		1·09	5·83	64·74		....	
	32	7 Sagittarii	E	25·3	28·5	31·4	34·4	40·4	46·7	49·6	52·7	55·7	17. 53. 40·51		40·50				17. 54. 45·27	− 3·12
	33	☽ 1 L.	E	55·9	58·9	1·9	5·0	10·8	17·0	19·9	23·0	26·0	18. 3. 10·92		10·94				18. 5. 20·10	
	34	η Serpentis.....	E	9·7	12·3	15·1	17·9	23·5	29·2	31·8	34·6	37·4	18. 13. 23·48		23·62	28·43	64·81		....	
	35	δ Ursæ Min.(E&E)	E	..	12·0	58·5	..	..	52·5	39·5	..	11·5	18. 14. 18·24		23·08	28·10	65·02		....	
	36	Ceph.51 S.P.(E&E)	E	11·0	8·0	5·0	2·0	..	..	..	..	..	18. 35. 57·97		52·52	57·57	65·05		....	
	37	28 Sagittarii	E	..	5·7	8·7	11·6	17·7	23·6	26·5	29·4	..	18. 37. 17·57		17·57				18. 38. 22·38	− 3·11
	38	Bradley 2412....	E	..	..	31·3	54·1	39·4	25·7	49·1	..	..	18. 40. 39·70		42·18				18. 41. 46·99	− 8·29
	39	ν^1 Sagittarii	E	51·5	54·5	57·4	0·6	6·5	12·6	15·7	18·6	21·6	18. 45. 6·53		6·53				18. 46. 11·34	− 3·11
July 16	40	θ Ophiuchi.....	JC	31·4	34·5	37·6	40·6	46·6	53·0	55·9	58·9	2·0	17. 13. 46·70	−0·59	46·93	53·64	6·71	5·74	17. 13. 53·75	− 3·05
	41	*b* Ophiuchi.....	JC	..	..	..	..	..	..	20·2	23·2	26·1	17. 18. 11·03	(+8·25)	11·26			[1·51]	17. 18. 18·09	− 3·05
	42	σ Ophiuchi.....	JC	36·4	39·3	42·0	44·7	50·4	55·9	58·6	1·4	4·2	17. 19. 50·31	[+1·72]	50·73	57·53	6·80		17. 19. 57·56	− 2·56
	43	Piazzi XVII. 196.	JC	35·0	38·2	41·4	44·7	51·2	57·6	0·8	4·1	7·4	17. 34. 51·14		51·75				17. 34. 58·59	− 2·43
	44	β Ophiuchi	L	35·8	38·6	41·4	44·2	49·7	55·3	58·0	0·8	3·5	17. 36. 49·68		50·10	56·74	6·64	5·52†	....	
	45	μ Herculis	L	54·8	58·1	1·1	4·4	10·5	16·7	20·0	23·0	26·1	17. 41. 10·51		11·09	17·71	6·62		....	
	46	89 Herculis	JC	43·0	46·1	49·2	52·2	58·3	4·6	7·6	10·7	13·7	17. 49. 58·35		58·92	5·82	6·90	5·74	17. 50. 5·78	− 2·51

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·500, excepting for Nos. 16 and 17, when it was 31r·034, having been inadvertently left at that reading.
Corrections for passage of Semidiameter, Nos. 2, 14, and 33, + 63s·86: + 64s·20: and + 64s·38.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
July 15d. 22h. The Transit-Clock was put forward 1m.
July 12 and 13. The azimuthal error used is that determined on July 13 by tabular places of δ Ursæ Minoris and Cephei 51 S.P., allowing 0s·02 for clock-rate.
July 14. The azimuthal error by tabular places of δ Ursæ Minoris and Cephei 51 S.P., allowing 0s·02 for clock-rate.
July 16. The azimuthal error used is the mean of those (+ 1″·56 and + 1″·89) determined by tabular places of δ Ursæ Minoris S.P. and Cephei 51 on July 16, and of α Aquilæ and Polaris S.P. on July 16 and 17, allowing 0s·02 and 1s·09 for clock-rate in each case respectively.

2. Cloudy; very faint; the limbs scarcely visible.

14. Very tremulous.

17, 21. Cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
July 16	1	Piazzi XVII. 323	JC	22·4	25·4	28·3	31·4	37·1	43·0	46·1	49·0	52·0	17. 54. 37·17	−0·59	37·43			5·74	17. 54. 44·29	− 3·04
	2	101 Herculis	JC	..	52·3	55·1	58·2	4·0	10·0	12·8	15·9	..	18. 3. 4·01	(+ 8·25)	4·54			[1·51]	18. 3. 11·41	− 2·58
	3	Groombridge 2533	JC	7·0	10·8	14·4	18·2	25·6	33·0	36·8	40·6	44·2	18. 11. 25·59	[+1·72]	26·30				18. 11. 33·18	− 2·64
	4	106 Herculis	JC	20·6	23·7	26·6	29·5	35·4	41·4	44·4	47·4	50·4	18. 14. 35·47		36·01				18. 14. 42·90	− 2·61
	5	δ Ursæ Min. (E&E)	JC	..	..	..	..	..	48·0	35·5	22·0	9·0	18. 15. 14·47		20·30	27·66	7·36		....	
	6	Piazzi XVIII. 100	JC	..	47·9	51·0	54·0	0·0	6·1	9·2	12·2	..	18. 24. 0·03		0·59				18. 24. 7·49	− 2·64
	7	Cep. 51 S.P. (E&E)	JC	10·0	7·5	4·0	1·5	57·0	51·5	..	..	..	18. 36. 57·18		50·97	58·10	7·13		....	
	8	110 Herculis	JC	36·9	..	42·6	45·7	51·5	57·4	0·3	..	6·4	18. 39. 51·52		52·05				18. 39. 58·96	− 2·68
	9	ν² Lyræ.....	JC	..	37·1	40·4	43·5	50·0	56·7	59·9	3·3	..	18. 44. 50·10		50·71				18. 44. 57 63	− 2·72
	10	113 Herculis	JC	..	51·3	54·3	57·3	3·2	9·3	12·2	15·4	..	18. 49. 3·26		3·81				18. 49. 10·73	− 2·71
	11	Bradley 2388....	JC	41·2	44·6	47·7	51·1	57·6	4·3	7·4	10·8	14·0	18. 51. 57·61		58·23				18. 52. 5·15	− 2·74
	12	ζ Aquilæ	JC	58·8	1·7	4·7	7·4	13·1	18·9	21·7	24·4	27·2	18. 59. 13·08		13·56	20·51	6·95		18. 59. 20·49	− 2·73
	13	π Sagittarii	JC	32·1	35·3	38·2	41·2	47·1	53·0	56·0	59·0	2·0	19. 1. 47·08		47·34				19. 1. 54·27	− 3·08
	14	ρ¹ Sagittarii	JC	38·8	41·6	44·4	47·4	53·2	59·0	2·1	4·9	7·8	19. 13. 53·23		53·51				19. 14. 0·46	− 3·02
	15	50 Sagittarii	JC	4·1	7·1	10·1	13·0	19·0	25·0	28·0	31·0	34·0	19. 18. 19·01		19·26				19. 18. 26·21	− 3·10
	16	μ Aquilæ	JC	..	19·8	22·6	25·4	30·9	36·5	39·4	42·1	..	19. 27. 30·93		31·37	38·30	6·93		19. 27. 38·33	− 2·79
	17	γ Aquilæ	JC	..	..	..	46·0	51·3	57·3	59·9	2·8	5·6	19. 39. 51·50		51·97	58·97	7·00		19. 39. 58·94	− 2·78
	18	α Aquilæ	JC	58·9	1·8	4·5	7·3	12·9	18·5	21·2	24·0	27·0	19. 44. 12·88		13·33	20·42	7·09		19. 44. 20·31	− 2·80
	19	☽ 1 L.....	JC	..	59·1	2·0	5·0	10·9	16·9	20·0	22·8	..	19. 47. 10·93		11·21				19. 48. 22·33	
	20	☽ 2 L.....	JC	4·1	7·2	10·0	13·1	19·0	25·1	28·1	31·0	34·0	19. 49. 19·04		19·32				19. 48. 22·17	
	21	α² Capricorni....	JC	21·7	24·6	27·5	..	36·0	..	44·4	47·4	50·1	20. 10. 35·94		36·26	43·23	6·97		20. 10. 43·26	− 2·87
July 17	22	⊙ 2 L.....	C	55·7	58·7	1·7	4·7	10·7	16·5	19·6	22·5	25·5	7. 46. 10·61	(+ 7·58)	11·11			7·25	7. 45. 11·00	
	23	Polaris S.P. (E&E)	C	..	..	20·0	12·0	58·0	..	..	..	..	13. 10. 59·34		48·11	56·59	8·48		....	
July 18	24	ζ Herculis	E	50·8	54·1	57·4	0·6	7·2	13·8	16·9	20·1	23·5	16. 36. 7·13	(+ 8·31)	7·75	18·47	10·72	9·39	....	
	25	Groombridge 2376	E	36·4	..	44·0	47·6	55·2	2·6	6·4	..	13·9	16. 42. 55·13		55·85			[1·86]	16. 43. 6·53	− 2·07
	26	κ Ophiuchi.....	E	59·7	2·4	..	8·0	13·6	19·3	..	24·9	27·7	16. 51. 13·64		14·10	24·75	10·65		....	
	27	d Herculis	E	16·2	19·4	..	26·0	32·0	39·4	..	46·0	49·4	16. 56. 32·71		33·35				16. 56. 44·05	− 2·20
	28	α Herculis	E	..	..	..	..	..	32·0	34·8	37·6	40·6	17. 8. 26·22		26·71	37·44	10·73		....	
	29	Groombridge 2435	E	54·4	58·4	1·8	5·4	..	19·9	23·6	..	30·7	17. 17. 12·63		12·33				17. 17. 24·06	− 2·30
	30	α Ophiuchi.....	D	22·9	25·7	28·6	31·4	37·0	42·7	45·7	48·4	51·3	17. 28. 37·06		37·54	48·17	10·63	9·28†	....	
	31	η Serpentis.....	D	3·6	6·3	9·1	11·8	17·3	23·0	25·7	28·4	31·2	18. 14. 17·36		17·74	28·43	10·69		....	
July 19	32	α Orionis	D	30·7	33·7	36·6	39·4	44·8	50·4	53·4	56·0	58·8	5. 47. 44·85	(+ 7·95)	45·28	58·71	13·43		....	
July 21	33	μ Pegasi.....	JC	6·3	9·3	12·4	15·4	21·5	27·7	30·5	33·6	36·6	22. 43. 21·46		22·00	37·89	15·89		....	
	34	λ Aquarii.....	JC	12·6	15·3	18·2	21·0	26·5	32·1	34·8	37·7	40·4	22. 45. 26·49		26·82	42·80	15·98		....	
	35	κ Piscium.....	E	38·7	41·7	44·3	..	..	58·2	0·8	3·5	6·4	23. 19. 52·55		52·94	9·16	16·22		....	
July 22	36	⊙ 1 L.	S	34·0	..	39·8	42·8	48·6	54·8	57·6	..	3·6	8. 3. 48·72	−0·10	56·76			16·13	8. 5. 13·42	
	37	⊙ 2 L.....	S	49·0	52·0	54·9	57·8	3·6	9·6	12·5	15·5	18·4	8. 6. 3·68	(+ 8·40)				[1·58]		
	38	α² Capricorni....	D	11·3	14·2	17·1	19·8	25·6	31·2	34·1	36·9	39·8	20. 10. 25·54	[+1·42]	25·87	43·30	17·43	16·13†	....	
	39	β Capricorni	D	3·0	5·9	8·8	11·6	17·3	23·1	25·9	28·8	31·6	20. 13. 17·31		17·62	35·11	17·49		....	
July 23	40	α Lyræ	K	51·5	55·1	58·3	2·2	9·2	16·3	19·9	23·3	26·9	18. 32. 9·19		9·92	28·82	18·90	17·74	18. 32. 28·86	− 2·69
	41	2 Aquilæ	K	29·3	32·0	34·8	37·6	43·1	48·7	51·3	54·3	57·0	18. 34. 43·10		43·45			[1·55]	18. 35. 2·39	− 2·90
	42	Bradley 2412....	K	30·3	52·8	15·9	39·4	25·2	..	..	..	..	18. 41. 24·88		28·42				18. 41. 47·37	− 7·58
	43	β Lyræ.....	K	..	40·2	43·4	47·0	53·3	0·0	3·3	6·4	..	18. 44. 53·34		54·02	12·89	18·87		18. 45. 12·97	− 2·70

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31ʳ·500.
Corrections for passage of Semidiameter, Nos. 19, 20, and 22, + 64ˢ·14 : −64ˢ·14 : and −67ˢ·85.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
July 22 to 27. As there was no determination of azimuthal error between these dates, the mean of those determined on the 16th and 29th (+ 1″·72 and + 1″·11) has been used.

15, 17, 19, 20. Cloudy.
19. Correction for defect of illumination, −0ˢ·01.
19, 20. Correction to R.A. on true Meridian, + 0ˢ·01.
23. Very cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	//	s	s	s	s	h m s	s
Aug. 2	1	Bradley 2388....	E	16·4	19·8	23·0	26·3	32·9	39·5	42·7	46·0	49·4	18. 51. 32·86	−0·52	33·48			30·82	18. 52. 5·16	− 2·69
	2	ζ Aquilæ	E	34·3	37·1	..	42·8	..	..	57·2	59·9	2·8	18. 58. 48·52	(+8·99)	48·94	20·52	31·58	[1·10]	18. 59. 20·63	− 2·74
	3	Piazzi XVIII. 318	E	..	..	42·1	45·2	51·5	57·9	..	4·3	7·4	19. 0. 51·56	[−1·05]	52·13				19. 1. 23·82	− 2·73
	4	B. F. 2591	E	10·3	13·1	16·1	19·1	25·0	31·1	34·0	37·0	40·0	19. 6. 25·06		25·55				19. 6. 57·25	− 2·74
	5	Groombridge 2812	E	43·6	47·5	51·0	..	1·7	9·2	12·8	..	20·0	19. 14. 1·84		2·55				19. 14. 34·25	− 2·85
	6	δ Aquilæ.....	E	4·5	7·4	10·0	12·8	18·4	24·0	26·6	29·4	32·3	19. 18. 18·35		18·66	50·33	31·67		19. 18. 50·37	− 2·85
	7	Fortuna	E	10·4	13·8	..	19·6	25·3	31·3	..	37·1	..	19. 27. 25·34		25·44				19. 27. 57·15	
	8	α Aquilæ	E	34·3	37·3	40·0	42·7	..	..	56·8	59·6	2·4	19. 43. 48·37		48·73	20·51	31·78		19. 44. 20·45	− 2·89
	9	β Aquilæ	E	3·7	6·5	..	..	17·6	23·3	26·0	..	31·5	19. 48. 17·62		17·97	49·66	31·69		19. 48. 49·70	− 2·88
	10	λ Ursæ Minoris ..	E	..	..	55·0	18·5	8·0	..	..	..	..	19. 57. 9·49		34·92	6·70	31·78		....	
	11	56 Camelop. S.P..	E	..	..	47·4	53·4	4·5	15·8	21·8	..	..	20. 4. 4·64		4·11				8. 4. 35·85	+ 0·55
	12	Bradley 1160 S.P.	E	..	..	..	5·9	24·9	43·0	52·5	1·8	11·7	20. 5. 24·66		23·41				8. 5. 55·15	+ 1·90
	13	Echo	E	..	..	..	31·5	37·2	42·8	45·6	48·7	51·6	20. 25. 37·17		37·32				20. 26. 9·08	
	14	Hygeia.....	E	46·3	49·4	52·3	55·0	0·8	6·8	9·6	12·4	15·5	20. 27. 0·88		1·00				20. 27. 32·76	
	15	ε Aquarii	E	45·4	48·1	51·1	53·7	59·4	5·1	7·9	10·6	13·5	20. 39. 59·40		59·60	31·38	31·78		20. 40. 31·37	− 2·98
	16	Jupiter 1 L.....	E	3·3	..	9·0	..	17·4	..	..	..	31·4	22. 30. 17·38		} 19·24				22. 30. 51·09	
	17	Jupiter 2 L.	E	6·8	..	12·3	..	20·7	..	29·0	..	34·8	22. 30. 20·71		20·64	52·53	31·89		22. 34. 52·49	− 2·82
	18	ζ Pegasi.....	E	6·3	9·0	11·7	14·8	20·3	25·9	28·8	31·5	34·2	22. 34. 20·26		24·95				10. 42. 56·81	+ 0·96
	19	43 Ursæ Maj. S.P.	E	59·9	5·0	10·1	15·1	25·5	35·7	40·7	45·9	51·2	22. 42. 25·49							
	20	μ Herculis	E	..	..	..	..	43·3	49·7	52·7	55·9	59·0	17. 40. 43·34	(+8·35)	44·00	17·54	33·54	32·75†	....	
Aug. 4	21	89 Herculis	E	16·0	19·0	22·2	25·4	31·4	37·7	40·8	43·8	46·8	17. 49. 31·44	[+3·58]	32·08	5·67	33·59	[1·11]	....	
	22	☽ 1 L.	K	56·8	59·9	2·9	5·6	11·5	17·2	20·2	23·0	25·9	14. 23. 11·43	−0·07	11·92			35·06		
Aug. 6	23	72 Ophiuchi	E	14·4	17·3	20·0	23·0	28·6	34·2	37·1	40·0	42·6	18. 0. 28·55	(+8·87)	29·16	5·16	36·00	[1·24]	14. 24. 51·58	
	24	μ^1 Sagittarii.....	E	0·5	3·3	6·2	9·3	15·1	21·0	23·9	27·0	30·0	18. 5. 15·12		15·54	51·52	35·98	35·06†	....	
	25	δ Ursæ Min.(E&E)	K	..	..	..	..	..	14·5	1·5	47·0	34·0	18. 14. 40·04		45·82	22·60	36·78	35·06	....	
	26	χ Draconis.....	K	..	..	..	..	..	11·4	20·7	30·1	39·1	18. 22. 52·71		54·28				18. 23. 30·29	− 3·20
	27	2 Aquilæ	K	11·9	14·5	17·4	20·2	25·7	31·4	34·2	37·1	39·7	18. 34. 25·77		26·28				18. 35. 2·30	− 2·86
	28	Cep. 51 S.P.(E&E)	K	..	..	..	..	..	27·0	25·0	21·0	20·0	18. 36. 32·95		27·09	3·90	36·81		....	
	29	θ Aquilæ	K	39·0	41·8	..	47·4	52·9	58·3	..	4·0	6·6	20. 3. 52·83		53·38	29·42	36·04		20. 4. 29·48	− 2·95
	30	α^2 Capricorni....	K	52·7	55·6	58·4	1·4	6·9	12·5	15·3	18·0	21·1	20. 10. 6·86		7·35	43·40	36·05		20. 10. 43·45	− 3·04
	31	β Capricorni	K	44·2	47·3	50·0	53·0	58·6	4·4	7·4	10·1	13·1	20. 12. 58·65		59·13	35·22	36·09		20. 13. 35·23	− 3·07
	32	γ Capricorni	K	54·9	57·9	0·7	3·7	9·3	15·2	18·0	21·0	24·0	21. 32. 9·39		9·84				21. 32. 46·01	− 2·99
	33	79 Draconis.....	K	..	..	12·5	22·1	41·0	0·2	9·6	..	..	21. 50. 40·99		42·59				21. 51. 18·78	− 6·39
	34	Bradley 2884 ...	K	57·4	2·4	7·5	12·8	22·9	33·0	37·9	43·0	48·2	21. 54. 22·75		23·81				21. 55. 0·00	− 4·18
	35	θ Aquarii	K	0·9	3·9	6·5	9·4	14·9	20·4	23·4	26·0	28·9	22. 9. 14·90		15·41	51·65	36·24		22. 9. 51·61	− 2·86
	36	Jupiter 1 L.	K	..	..	..	28·3	33·7	39·5	..	45·1	..	22. 28. 33·81		} 36·05				22. 29. 12·27	
	37	Jupiter 2 L.	K	..	..	..	31·6	37·3	43·0	..	48·7	..	22. 28. 37·31		24·40				22. 35. 0·62	− 2·82
	38	19 Piscis Australis	K	7·7	11·4	14·5	17·7	24·0	30·5	33·7	36·9	40·2	22. 34. 24·04		20·68				10. 42. 56·91	+ 0·99
	39	43 Ursæ Maj. S.P.	K	..	..	..	..	..	30·8	..	41·0	46·2	22. 42. 20·61		42·63	18·96	36·33		23. 10. 18·88	− 2·75
	40	γ Piscium.....	K	28·2	31·0	33·8	36·6	42·0	47·4	50·4	53·2	56·0	23. 9. 42·05							
Aug. 8	41	☉ 1 L.	E	35·1	38·0	40·7	43·8	49·6	55·4	58·2	1·0	3·8	9. 9. 49·49	(+7·78)	} 56·03			37·76	9. 11. 34·19	
	42	☉ 2 L.	E	47·0	49·9	52·7	55·4	1·4	7·2	10·1	13·0	16·0	9. 12. 1·39	[+3·53]	46·56			[1·05]	16. 5. 29·03	
	43	☽ 1 L.	E	31·4	34·4	37·3	..	46·1	..	55·0	58·0	0·9	16. 3. 46·13		26·61	5·08	38·47		....	
	44	γ Herculis	E	..	14·3	17·2	20·2	26·0	31·9	34·9	37·8	..	16. 15. 26·01		58·70	37·24	38·54		....	
	45	α Herculis	E	43·8	46·7	49·6	52·4	58·1	4·0	6·7	9·6	12·4	17. 7. 58·12		39·35	17·49	38·14	37·34†	....	
	46	μ Herculis	L	23·0	26·3	29·4	32·5	38·8	45·0	48·1	51·2	54·3	17. 40. 38·71							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^r{\cdot}500$.
Corrections for passage of Semidiameter, Nos. 22 and 43, $+63^s{\cdot}84$: and $+63^s{\cdot}99$.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
August 4 to 6. The azimuthal error used is that determined on August 6 by tabular places of δ Ursæ Minoris and Cephei 51 S.P., allowing $0^s{\cdot}02$ for clock-rate.
August 8 and 9. The azimuthal error used is that determined by tabular places of α Lyræ and Cephei 51 S.P. on August 9.

22, 43. Correction to R.A. on true Meridian, $+0^s{\cdot}02$.
29. Extremely cloudy; at times scarcely visible.
30. Very cloudy.
31. Cloudy.
46. Faint.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	π	s	s	s	s	h m s	s
Aug. 8	1	72 Ophiuchi	L	12·5	15·4	18·0	21·0	26·4	32·1	35·0	37·7	40·5	18. 0. 26·49	−0·07	27·05	5·15	38·10	37·34†	....	
	2	ζ Cygni	E	24·6	27·7	30·8	34·0	40·5	46·9	50·1	53·1	56·3	21. 6. 40·43	(+7·78) [+3·53]	41·08	19·71	38·63	[1·05]	....	
Aug. 9	3	ζ Ophiuchi	JC	58·9	1·8	4·6	7·4	13·0	18·6	21·5	24·4	27·0	16. 29. 13·00		13·46	52·57	39·11	38·56	16. 29. 52·58	− 2·35
	4	ζ Herculis	JC	22·1	25·5	28·5	31·8	38·3	44·9	48·1	51·4	54·5	16. 35. 38·32		38·98	18·14	39·16	[0·82]	16. 36. 18·11	− 1·75
	5	η Herculis	JC	..	..	..	34·9	42·1	49·2	52·7	56·4	59·8	16. 37. 42·01		42·72				16. 38. 21·85	− 1·66
	6	☽ 1 L.	JC	17·2	20·1	23·2	26·2	32·1	38·2	41·2	44·1	47·0	16. 54. 32·13		32·54				16. 56. 15·92	
	7	ν Serpentis	JC	29·6	32·7	35·4	38·4	44·0	49·7	52·4	55·2	58·2	17. 12. 43·94		44·39				17. 13. 23·54	− 2·61
	8	ξ Serpentis	JC	7·3	10·0	13·0	15·9	21·6	27·2	30·1	33·0	35·7	17. 29. 21·52		21·95				17. 30. 1·11	− 2·72
	9	η Ophiuchi	C	53·8	56·7	59·5	2·4	8·1	14·0	16·7	19·6	22·5	17. 2. 8·12		8·54	47·72	39·18	38·58†	....	
	10	α Herculis	C	43·2	46·1	49·0	51·8	57·5	3·3	6·1	9·0	11·7	17. 8. 57·50		58·08	37·23	39·15		....	
	11	α Lyræ	JC	30·9	34·6	38·1	41·6	48·6	55·8	59·3	2·8	6·5	18. 31. 48·66		49·37	28·66	39·29	38·56	18. 32. 28·56	− 2·53
	12	Ceph. 51 S.P. (E&E)	JC	..	39·5	38·0	35·0	31·5	25·0	21·5	18·5	..	18. 36. 30·44		25·67	4·96	39·29		....	
	13	π Sagittarii	JC	..	..	5·8	8·8	14·7	20·6	23·6	26·6	29·5	19. 1. 14·67		15·07				19. 1. 54·28	− 3·11
	14	β Capricorni	JC	41·4	44·3	47·1	50·0	55·6	1·4	4·2	7·1	9·9	20. 12. 55·65		56·09	35·23	39·14		20. 13. 35·34	− 3·08
	15	Hygeia	JC	..	14·4	17·0	19·9	25·6	31·5	34·4	37·1	..	20. 21. 25·67		26·09				20. 22. 5·35	
	16	Harmonia	JC	33·3	36 4	39·2	42·2	47·7	54·4	57·4	0·3	3·4	20. 24. 48·23		48·62				20. 25. 27·88	
	17	35 Aquarii	JC	49·8	52·7	55·6	58·7	4·4	10·3	13·3	16·1	19·1	22. 1. 4·43		4·84				22. 1. 44·15	− 2·94
	18	Angelina	JC	44·1	47·3	..	..	..	4·0	6·8	9·4	12·1	22. 6. 58·25		58·71				22. 7. 38·02	
	19	γ Aquarii	JC	56·4	59·4	1·9	..	10·3	..	18·5	21·4	24·1	22. 14. 10·26		10·76	50·05	39·29		22. 14. 50·08	− 2·90
	20	Jupiter 1 L.	JC	58·2	..	3·7	..	12·1	..	20·7	..	26·2	22. 27. 12·17		} 14·35				22. 27. 53·68	
	21	Jupiter 2 L.	JC	1·4	..	7·3	..	15·7	..	24·1	..	29·6	22. 27. 15·61							
	22	Venus 2 L.	D	36·6	39·6	42·6	45·6	51·4	57·4	0·1	3·2	6·2	8. 28. 51·39	[+3·37]	52·00			39·44 [0·77]	8. 29. 31·33	
Aug. 10	23	⊙ 1 L.	D	10·1	13·2	16·0	18·8	24·4	30·3	33·3	36·1	38·9	9. 17. 24·55		} 30·97				9. 19. 10·71	
	24	⊙ 2 L.	D	21·8	24·8	27·5	30·5	36·2	42·2	44·8	47·7	50·8	9. 19. 36·23							
	25	α Herculis	D	42·4	45·2	48·0	51·0	56·6	2·3	5·3	8·0	10·9	17. 7. 56·61		57·19	37·21	40·02		17. 8. 37·18	− 2·17
	26	ν Serpentis	D	28·9	31·7	34·5	37·3	43·0	48·6	51·6	54·4	57·3	17. 12. 43·02		43·47				17. 13. 23·46	− 2·59
	27	σ Ophiuchi	D	2·8	5·8	8·5	11·2	16·9	22·3	25·2	27·9	30·7	17. 19. 16·79		17·31	57·33	40·02		17. 19. 57·30	− 2·36
	28	α Ophiuchi	D	53·3	56·2	58·9	1·6	7·4	13·2	16·0	18·7	21·5	17. 28. 7·40		7·96	47·97	40·01		17. 28. 47·96	− 2·30
	29	ξ Serpentis	D	6·3	9·1	12·0	15·0	20·6	26·4	29·3	32·2	34·9	17. 29. 20·63		21·06				17. 30. 1·06	− 2·71
	30	β Ophiuchi	E	2·0	5·0	7·7	10·4	16·0	21·5	24·4	27·0	29·8	17. 36. 15·96		16·48	56·56	40·08	39·59†	....	
	31	μ Herculis	E	21·0	24·2	..	..	36·5	42·8	46·0	49·2	52·2	17. 40. 36·58		37·22	17·46	40·24		....	
	32	☽ 1 L.	D	29·0	32·2	35·0	38·1	44·0	50·1	53·1	56·1	59·1	17. 45. 44·06		44·46			39·44	17. 47. 28·91	
	33	98 Herculis	D	32·6	35·6	38·7	41·6	47·6	53·5	56·6	59·5	2·5	17. 59. 47·56		48·17				18. 0. 28·19	− 2·37
	34	μ^1 Sagittarii	D	56·4	59·4	2·3	5·3	11·0	17·1	20·1	23·2	25·9	18. 5. 11·17		11·56	51·49	39·91		18. 5. 51·58	− 2·96
	35	δ Ursæ Min. (E&E)	D	43·0	31·0	17·0	..	36·0	10·5	57·5	..	..	18. 14. 36·68		41·59	21·32	39·73		....	
	36	Bradley 2313.	D	..	..	..	..	..	..	..	10·7	13·7	18. 20. 59·32		59·74				18. 21. 39·77	− 2·89
	37	Piazzi XVIII. 116	D	..	..	..	..	35·9	42·1	45·1	48·2	51·2	18. 26. 36·03		36·64				18. 27. 16·67	− 2·51
	38	α Lyræ	D	30·3	33·6	37·2	41·0	47·8	55·0	58·6	2·0	5·7	18. 31. 47·88		48·59	28·64	40·05		18. 32. 28·62	− 2·51
	39	Ceph. 51 S.P. (E&E)	D	..	..	38·0	34·0	31·0	..	22·0	19·5	..	18. 36. 30·55		25·62	5·37	39·75		....	
	40	Hygeia	D	25·6	28·5	31·9	34·4	40·4	..	..	..	..	20. 20. 40·25		40·66				20. 21. 20·75	
	41	α Delphini	D	..	..	41·3	44·1	50·0	55·4	58·6	1·4	4·2	20. 32. 49·86		50·44	30·61	40·17		20. 33. 30·54	− 2·97
	42	ε Aquarii	D	36·8	39·8	42·5	45·3	50·9	56·7	59·5	2·2	4·9	20. 39. 50·94		51·40	31·43	40·03		20. 40. 31·50	− 3·03
	43	α Aquarii	D	5·5	8·3	11·0	13·9	19·3	24·9	27·6	30·4	33·2	21. 58. 19·32		19·82	0·00	40·18		21. 58. 59·96	− 2·93
	44	Bradley 2935 (1st Star)	D	..	..	..	..	19·1	1·6	21·8	42·3	2·4	22. 2. 19·97		22·44				22. 3. 2·59	−12·18
	45	Bradley 2935 (2d Star)	D	..	..	..	..	25·9	8·0	28·5	49·0	8·5	22. 2. 26·51		28·98				22. 3. 9·13	−12·18
	46	Lætitia	D	0·7	3·7	6·5	9·2	14·8	20·4	23·1	25·9	28·6	22. 14. 14·75		15·21				22. 14. 55·36	

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, $31^r·500$.
Corrections for passage of Semidiameter, Nos. 6, 22, and 32, $+64^s·23$: $-0^s·38$: and $+64^s·43$.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
August 10 and 11. The azimuthal error used is that determined on August 10 by tabular places of δ Ursæ Minoris and Cephei 51 S.P., allowing $0^s·01$ for clock-rate.

6, 32. Correction to R.A. on true Meridian, $+0^s·01$.

44, 45. Both stars of equal magnitude.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
Aug. 20	1	ζ Aquilæ	K	..	14·2	17·0	19·9	25·6	31·4	34·2	37·0	..	18. 58. 25·58	−0·18	26·18	20·40	54·22	52·73	18. 59. 20·36	− 2·62
	2	δ Draconis	K	2·9	10·3	17·4	24·4	39·0	53·5	0·9	7·9	15·0	19. 11. 38·97	(+7·48)	39·98			[1·84]	19. 12. 34·18	− 3·13
	3	Bradley 2832	K	..	..	..	..	23·4	..	39·0	4·4	..	21. 23. 23·28	[+4·72]	25·54				21. 24. 19·91	−13·17
	4	Bradley 2851	K	47·7	50·9	53·9	56·9	3·0	9·1	12·2	15·3	18·2	21. 39. 3·00		3·64				21. 39. 58·03	− 3·19
	5	16 Pegasi	K	..	56·8	59·7	2·8	8·8	15·0	18·0	21·2	..	21. 46. 8·87		9·51	3·91	54·40		21. 47. 3·91	− 3·20
	6	η Piscis Australis	K	4·0	7·0	10·2	13·6	19·8	26·1	29·1	32·4	35·3	21. 52. 19·70		20·13				21. 53. 14·54	− 3·16
	7	α Aquarii	JC	51·4	54·4	57·2	59·9	3·4	10·8	13·7	16·4	19·2	21. 58. 5·36		5·91	0·09	54·18	52·59†	....	
	8	μ Piscis Australis	K	28·5	32·2	35·6	38·6	45·3	52·2	55·5	58·7	2·1	21. 59. 45·39		45·80			52·73	22. 0. 40·21	− 3·21
	9	θ Aquarii	JC	43·0	45·7	48·6	51·4	56·9	2·4	5·4	..	..	22. 8. 56·91		57·43	51·81	54·38	52·59†	....	
	10	Bradley 2942	K	..	..	..	..	38·8	57·4	6·6	16·0	25·3	22. 9. 38·75		39·91			52·73	22. 10. 34·34	− 6·56
	11	γ Aquarii	K	..	44·3	47·0	49·6	55·2	0·7	3·5	6·4	..	22. 13. 55·21		55·75	50·17	54·42		22. 14. 50·19	− 3·02
	12	Jupiter 1 L.	K	31·5	..	37·2	..	45·6	..	54·2	..	59·7	22. 21. 45·63		} 47·87				22. 22. 42·32	
	13	Jupiter 2 L.	K	35·0	..	40·6	..	49·1	..	57·6	..	3·2	22. 21. 49·09							
	14	λ Aquarii	K	34·4	37·2	40·0	42·8	48·4	54·0	56·8	59·7	2·4	22. 44. 48·39		48·91	43·33	54·42		22. 45. 43·38	− 2·95
	15	h Piscium	HC	30·8	34·1	37·2	40·3	46·6	52·8	56·2	59·2	2·3	0. 49. 46·58		47·24			54·40	0. 50. 41·70	− 3·13
	16	ϵ Piscium	HC	56·1	58·9	1·9	4·6	10·1	15·6	18·4	21·4	24·1	0. 55. 10·11		10·69	5·25	54·56	[1·84]	0. 56. 5·16	− 2·69
	17	φ Piscium	HC	24·6	27·8	30·7	33·7	39·6	45·8	48·9	51·7	54·9	1. 5. 39·72		40·36				1. 6. 34·84	− 2·97
	18	Polaris .... (E&E)	HC	53·0	48·5	40·0	..	17·5	7·0	..	..	..	1. 10. 18·46		26·47	23·48	57·01		....	
	19	47 Andromedæ	HC	..	..	2·3	..	12·7	19·6	23·2	..	..	1. 15. 12·68		13·37				1. 16. 7·87	− 3·30
	20	η Piscium	HC	15·4	18·4	21·3	24·1	29·9	35·4	38·5	41·3	44·0	1. 23. 29·79		30·39	24·86	54·47		1. 24. 24·89	− 2·70
	21	Piazzi I. 104	HC	27·2	30·7	34·1	37·6	44·4	51·4	55·0	58·2	1·6	1. 25. 44·44		45·14				1. 26. 39·65	− 3·24
	22	ν Piscium	HC	24·2	26·9	29·8	32·4	38·2	43·6	46·5	49·2	52·0	1. 33. 38·07		38·64	33·15	54·51		1. 34. 33·16	− 2·49
	23	ο Piscium	HC	15·7	18·5	21·4	24·1	29·7	35·4	38·2	40·9	43·8	1. 37. 29·72		30·31				1. 38. 24·83	− 2·54
	24	1 Arietis (1st Star)	HC	40·5	43·6	46·6	49·6	55·4	..	..	..	..	1. 41. 55·45		56·08				1. 42. 50·61	− 2·77
	25	1 Arietis (2d Star)	HC	..	..	..	..	..	1·5	4·4	7·4	10·4	1. 41. 55·48		56·11				1. 42. 50·64	− 2·77
	26	β Arietis	HC	10·4	13·6	16·5	19·5	25·4	31·4	34·3	37·1	40·1	1. 46. 25·35		25·97	20·50	54·53		1. 47. 20·51	− 2·72
	27	κ Arietis	HC	0·2	3·3	6·2	9·2	15·2	21·2	24·2	27·1	30·0	1. 58. 15·16		15·80				1. 59. 10·35	− 2·70
	28	ξ1 Ceti	HC	50·4	53·3	56·0	58·7	4·4	9·9	12·9	15·6	18·4	2. 5. 4·38		4·96				2. 5. 59·52	− 2·40
	29	☽ 2 L.	HC	21·2	24·0	26·9	29·8	35·4	41·4	44·2	47·1	50·0	2. 19. 35·53		36·12				2. 19. 24·25	
	30	μ Ceti	HC	38·4	41·2	44·0	46·8	52·3	58·1	0·7	3·6	6·4	2. 36. 52·37		52·95				2. 37. 47·54	− 2·27
	31	σ Arietis	HC	1·9	4·9	7·7	10·5	16·3	22·0	24·9	27·7	30·7	2. 43. 16·27		16·87	11·46	54·59		2. 44. 11·48	− 2·31
																		56·49	3. 15. 11·59	
Aug. 21	32	☽ 2 L.	K	7·9	11·0	13·8	16·6	22·4	28·2	31·2	34·1	37·0	3. 15. 22·45	[+2·49]	22·95			[1·67]	....	
	33	η Tauri	K	24·7	28·0	30·9	33·9	39·9	46·0	49·1	52·0	55·0	3. 38. 39·92		40·48	37·15	56·67		....	
	34	γ1 Eridani	K	..	42·4	45·3	48·0	53·7	59·5	2·4	5·3	..	3. 50. 53·77		54·13	50·95	56·82		3. 53. 20·80	− 1·87
	35	λ Tauri	K	..	..	..	..	23·4	29·3	32·1	34·8	37·8	3. 52. 23·54		24·04			56·35	6. 30. 2·76	− 1·08
	36	γ Geminorum	P	51·0	53·9	56·9	59·5	5·4	11·3	14·1	17·2	19·8	6. 29. 5·44		5·96	2·75	56·79	[1·67]	6. 30. 2·73	− 0·62
	37	Sirius	P	6·2	9·1	12·0	14·9	20·5	26·4	29·3	32·0	34·9	6. 38. 20·57		20·92				6. 39. 17·73	− 0·70
	38	Procyon	P	9·8	12·5	15·4	18·1	23·6	29·3	32·0	34·8	37·6	7. 31. 23·66		24·12	21·05	56·93		7. 32. 20·99	− 0·75
	39	Pollux	P	58·2	1·2	4·4	7·6	13·8	20·1	23·2	26·4	29·7	7. 36. 13·82		14·41	11·20	56·79		7. 37. 11·29	
	40	Mercury 2 L	P	1·9	5·1	7·8	10·7	16·6	22·4	..	..	31·0	8. 5o. 16·51		17·04				8. 51. 13·76	
	41	Venus 2 L	P	29·3	32·2	35·2	38·0	43·7	49·5	52·4	55·4	58·2	9. 28. 43·75		44·27				9. 29. 40·91	
																			10. 4. 5·30	
Aug. 22	42	⊙ 2 L	P	..	1·4	4·2	7·1	12·5	18·4	21·3	24·1	..	10. 4. 12·68		13·18				10. 55. 28·22	+ 1·56
	43	α Ursæ Majoris	P	..	6·3	11·9	18·3	30·2	42·0	48·4	54·3	..	10. 54. 30·14		31·11				....	
	44	Polaris S.P. (E&E)	HC	9·5	1·5	54·0	52·0	..	..	..	..	..	13. 10. 36·20		25·39	24·64	59·25		13. 48. 21·94	− 0·78
	45	η Boötis	P	9·4	12·4	15·4	18·3	24·0	30·1	32·0	35·8	38·8	13. 47. 24·10		24·63	21·92	57·29		14. 0. 46·07	+ 1·53
	46	α Draconis	P	14·6	21·5	28·0	35·0	..	0·9	7·6	14·0	20·4	13. 59. 47·69		48·74				14. 9. 36·57	− 0·81
	47	Arcturus	P	24·1	27·0	30·0	32·8	38·7	44·5	47·4	50·5	53·4	14. 8. 38·69		39·23	36·57	57·34			

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S. T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·500.

Corrections for passage of Semidiameter, Nos. 29, 32, 40, 41, and 42, −66s·47: −68s·10: −0s·25: −0s·37: and −64s·93.

† This clock-error has been used in the reduction of the observations made with the Altazimuth.

August 21 and 22. The azimuthal error used is that determined on August 22 by tabular places of Polaris S.P. and λ Ursæ Minoris, allowing 0s·46 for clock-rate.

29, 32. Correction to R.A. on true Meridian, +0s·02.

31. Very faint.

39, 40. Tremulous.

44. Exceedingly tremulous: a very unsatisfactory observation.

45, 46. Faint.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire. h m s	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation. h m s	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s		″	s	s	s	s		s
Aug. 22	1	χ^1 Cygni.....	P	10·4	13·9	..	..	27·2	33·8	37·3	40·4	43·7	19. 40. 27·14	−0·18	27·77			56·35	19. 41. 25·49	− 2·77
	2	β Aquilæ	P	37·5	40·2	42·9	46·0	51·3	56·9	59·7	2·6	5·3	19. 47. 51·36	(+7·48)	51·83	49·61	57·78	[1·67]	19. 48. 49·56	− 2·83
	3	λ Ursæ Minoris..	P	..	..	25·0	52·0	..	..	..	..	55·0	19. 56. 43·01	[+2·49]	57·88	57·59	59·71		....	
	4	17 Vulpeculæ....	P	..	3·2	6·1	9·1	15·1	21·2	24·1	27·2	..	20. 0. 15·11		15·67				20. 1. 13·42	− 2·85
	5	κ Cephei.....	P	..	..	47·8	0·0	24·7	50·7	3·4	..	..	20. 12. 25·20		26·90				20. 13. 24·66	− 5·67
	6	Groombridge 3140	P	..	..	..	..	..	..	41·5	45·0	48·6	20. 14. 30·77		31·44				20. 15. 29·20	− 3·02
	7	ϵ Delphini	P	42·1	44·9	47·7	50·5	..	1·8	4·6	7·4	10·1	20. 25. 56·11		56·60	54·41	57·81		20. 26. 54·38	− 2·93
	8	Bradley 2673....	P	..	..	12·9	21·5	39·4	57·6	6·9	..	..	20. 29. 39·57		40·88				20. 30. 38·66	− 4·91
	9	7 Piscis Australis	P	38·3	..	44·4	47·9	54·4	0·6	4·0	..	..	21. 27. 54·34		54·58				21. 28. 52·43	− 3·30
	10	Bradley 2854....	P	..	..	59·8	7·7	24·9	41·6	49·7	..	..	21. 36. 24·68		25·92				21. 37. 23·78	− 5·72
	11	c^1 Capricorni	P	..	..	..	..	..	..	8·0	10·5	13·4	21. 36. 59·39		59·78				21. 37. 57·64	− 3·06
	12	η Piscis Australis	P	0·8	3·9	7·0	10·1	16·4	23·0	25·9	29·1	32·3	21. 52. 16·48		16·75				21. 53. 14·63	− 3·17
	13	15 Cephei	P	12·9	18·1	23·5	28·8	39·8	..	..	..	..	21. 58. 39·70		40·62				21. 59. 38·51	− 4·47
	14	ι Pegasi	JC	..	..	45·5	48·3	54·3	0·4	3·5	6·5	9·4	21. 59. 54·33		54·90	52·46	57·56	56·09†	....	
	15	θ Aquarii.....	P	39·6	42·4	45·2	48·0	53·6	58·8	2·0	4·7	7·4	22. 8. 53·50		53·89	51·82	57·93	56·35	22. 9. 51·78	− 3·03
	16	Bradley 2942....	P	..	..	..	..	35·4	53·5	3·1	12·5	21·6	22. 9. 35·15		36·48				22. 10. 34·37	− 6·57
	17	γ Aquarii.....	P	38·2	40·8	43·6	46·4	52·0	57·4	0·2	3·0	5·7	22. 13. 51·90		52·32	50·18	57·86		22. 14. 50·22	− 3·03
	18	Jupiter 1 L.....	P	29·1	..	34·6	..	43·4	..	51·6	..	57·3	22. 20. 43·19		} 45·21				22. 21. 43·12	
	19	Jupiter 2 L.....	P	32·3	..	38·1	..	46·5	..	55·0	..	0·6	22. 20. 46·49							
	20	σ Aquarii.....	JC	..	..	32·8	35·6	41·3	47·0	49·8	52·6	55·4	22. 22. 41·28		41·66	39·36	57·70	56·09†	....	
	21	η Aquarii.....	JC	22·1	25·0	27·9	30·7	36·1	41·8	44·5	47·3	49·9	22. 27. 36·12		36·55	34·24	57·69		....	
	22	Mercury 2 L.....	W	52·0	55·0	58·0	..	6·6	..	15·4	18·2	20·9	8. 55. 6·57	(+6·19)	6·95			58·32	8. 56. 5·60	
														[+0·65]				[1·57]		
Aug. 23	23	⊙ 1 L.....	W	..	31·5	34·3	36·8	42·7	47·9	51·1	53·9	..	10. 5. 42·57		} 47·83				10. 7. 46·82	
	24	⊙ 2 L.....	W	..	41·0	43·9	46·9	52·4	58·0	0·9	3·8	..	10. 7. 52·38							
	25	Polaris S.P.(E&E)	W	12·5	3·0	57·0	50·0	37·0	.	..	..	..	13. 10. 37·46		26·13	25·41	59·28		....	
	26	Spica	W	58·8	2·0	4·7	7·5	13·0	18·8	21·7	24·4	27·0	13. 17. 13·08		13·31	12·41	59·10		13. 18. 12·50	− 1·10
	27	ζ Aquilæ	W	6·1	9·0	12·0	14·7	20·4	26·1	29·0	31·7	34·6	18. 58. 20·38		20·74	20·36	59·62		18. 59. 20·30	− 2·58
	28	β Aquilæ	W	35·8	38·5	41·6	44·2	49·9	55·3	58·0	1·0	3·6	19. 47. 49·74		50·06	49·60	59·54		19. 48. 49·67	− 2·82
	29	23 Vulpeculæ ...	W	2·7	6·1	8·8	12·1	18·2	24·5	27·6	31·0	33·8	20. 9. 18·29		18·73				20. 10. 18·37	− 2·89
	30	α Aquarii.....	W	46·1	49·2	51·8	54·6	0·0	5·6	8·4	11·0	13·8	21. 58. 0·04		0·32	0·11	59·79		21. 59. 0·08	− 3·04
	31	39 Aquarii.....	W	4·1	6·8	9·6	12·8	18·2	24·0	26·8	29·7	32·6	22. 4. 18·27		18·47				22. 5. 18·23	− 3·05
	32	Jupiter 1 L.....	W	57·4	..	3·2	..	11·7	..	20·2	..	25·6	22. 20. 11·61		} 13·54				22. 21. 13·32	
	33	Jupiter 2 L.....	W	0·8	..	6·6	..	14·9	..	23·7	..	29·2	22. 20. 15·03							
	34	ζ Pegasi	W	38·6	41·6	44·3	47·2	52·5	58·3	1·2	4·0	6·8	22. 33. 52·70		53·04	52·79	59·75		22. 34. 52·84	− 3·08
	35	Fomalhaut.....	W	4·7	8·0	11·0	14·4	20·7	27·1	30·4	33·5	36·7	22. 49. 20·70		20·81	20·71	59·90		22. 50. 20·62	− 3·02
	36	ι Piscium	L	55·8	58·6	1·4	4·2	9·6	15·4	18·1	20·9	23·5	23. 32. 9·70	(+8·13)	1c·27	9·56	59·29	59·27†	....	
	37	μ Andromedæ ...	L	8·6	12·3	15·7	19·3	26·1	35·3	36·8	40·3	43·7	0. 48. 26·20	[+4·08]	26·94	26·22	59·28		....	
Aug. 24	38	⊙ 1 L.....	JC	8·1	11·0	13·8	16·6	22·2	27·9	30·7	33·6	36·5	10. 9. 22·25		} 27·60			59·43	10. 11. 27·71	
	39	⊙ 2 L.....	JC	17·4	20·4	23·4	26·2	31·8	37·4	40·2	43·1	46·0	10. 11. 31·75					[1·60]		
	40	σ Ophiuchi	JC	42·0	44·9	47·6	50·4	56·0	1·4	4·4	7·1	9·9	17. 18. 55·95		56·52	57·13	60·61		17. 19. 57·10	− 2·16
	41	Groombridge 2444	JC	36·0	39·7	43·4	47·1	54·4	1·9	5·6	9·1	12·9	17. 27. 54·43		55·19				17. 28. 55·78	− 1·69
	42	β Ophiuchi	JC	41·3	44·2	47·0	49·7	55·2	0·7	3·5	6·3	9·0	17. 35. 55·19		55·76	56·37	60·61		17. 36. 56·36	− 2·24
	43	β Aurigæ S.P....	JC	..	..	..	40·0	47·2	54·9	58·7	2·5	6·7	17. 48. 47·22		47·53				5. 49. 48·15	− 1·73
	44	λ Sagittarii	JC	27·0	30·1	33·0	36·0	42·0	48·2	51·4	54·3	57·4	17. 50. 42·14		42·57				17. 51. 43·19	− 2·79
	45	δ Ursæ Min. (E&E)	JC	..	..	..	..	11·0	45·0	31·5	17·5	4·8	18. 14. 10·54		15·19	16·53	61·34		....	
	46	Cep. 51 S.P. (E&E)	JC	..	..	..	..	14·5	8·0	6·0	2·0	1·5	18. 36. 14·23		9·75	11·12	61·37		....	
	47	θ Ursæ Maj. S.P.	JC	..	..	41·8	46·1	55·4	4·4	9·0	..	..	21. 22. 55·38		55·62				9. 23. 56·47	+ 0·30

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Correction for passage of Semidiameter, No. 22, −0s·25.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
August 23. The azimuthal error by tabular places of Polaris S.P. and Spica, allowing 0s·01 for clock-rate.
August 24. The azimuthal error by tabular places of δ Ursæ Minoris and Cephei 51 S.P., allowing 0s·03 for clock-rate.

3. Very cloudy.
9. Excessively faint; observed over the wires illuminated; the observation very unsatisfactory.
16. The time at the 8th wire has also been used for the 4th wire of an Altazimuth observation,) L.L., Face Left.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Sept. 3	1	49 Cygni	P	7·0	10·2	13·4	16·7	23·4	29·8	33·0	36·3	39·4	20. 35. 23·22	−0·18	23·86			17·25	20. 35. 42·66	− 2·95
	2	ε Capricorni	P	7·0	10·0	13·0	15·7	21·7	27·6	30·5	33·5	36·4	21. 29. 21·68	(+7·11)	22·13			[1·81]	21. 29. 41·00	− 3·13
	3	42 Capricorni	P	48·3	51·2	54·0	56·9	2·6	8·4	11·2	14·0	16·9	21. 34. 2·58	[+4·54]	3·05				21. 34. 21·93	− 3·08
	4	ε Pegasi	P	8·7	11·7	14·6	17·4	22·8	28·4	31·4	34·0	36·8	21. 37. 22·84		23·40	42·30	18·90		21. 37. 42·28	− 3·06
	5	ν Cephei	P	..	..	4·6	10·2	21·4	32·8	38·4	..	..	21. 41. 21·42		22·26				21. 41. 41·15	− 4·35
	6	79 Draconis	P	..	..	30·5	40·0	58·7	18·0	27·8	..	..	21. 50. 58·90		0·02				21. 51. 18·92	− 6·27
	7	Lætitia	P	19·4	22·4	25·0	28·0	33·6	39·0	42·1	44·7	47·6	21. 57. 33·51		34·00				21. 57. 52·90	
	8	20 Cephei	P	..	..	25·0	31·4	43·0	54·8	0·6	..	..	22. 0. 42·90		43·77				22. 1. 2·68	− 4·68
	9	γ Aquarii	P	17·0	19·7	22·4	25·3	30·9	36·3	39·2	41·8	44·7	22. 14. 30·79		31·31	50·24	18·93		22. 14. 50·23	− 3·09
	10	Jupiter 1 L.	P	..	13·8	..	19·2	..	30·6	..	36·3	..	22. 15. 24·93		26·95				22. 15. 45·87	
	11	Jupiter 2 L.	P	..	16·6	..	22·4	..	33·7	..	39·4	..	22. 15. 27·99		52·45	11·42	18·97		22. 58. 11·43	− 3·21
	12	α Pegasi	P	37·5	40·6	43·4	46·2	51·8	57·7	0·4	3·3	6·2	22. 57. 51·87		22·53				23. 0. 41·52	− 3·37
	13	56 Pegasi	P	6·7	9·8	12·8	15·9	21·9	28·0	31·2	34·1	37·1	23. 0. 21·92							
	14	☽ 1 L.	C	36·0	39·1	41·9	45·0	50·6	56·6	59·5	2·6	5·6	15. 43. 50·74	[+4·04]	51·19			18·91	15. 45. 15·60	
Sept. 4	15	γ Serpentis	C	45·0	47·9	50·7	53·6	59·3	5·1	8·0	10·9	13·7	15. 49. 59·32		59·88	19·96	20·08	[1·72]	15. 50. 19·92	− 1·27
	16	β^1 Scorpii	C	9·1	12·2	15·1	18·0	24·0	29·9	32·7	35·7	38·6	15. 57. 23·89		24·32	44·34	20·02		15. 57. 44·37	− 1·93
	17	β Ophiuchi	L	21·8	24·6	27·4	30·0	35·6	41·3	44·0	46·7	49·5	17. 36. 35·62		36·14	56·19	20·05	18·81†	....	
	18	μ Herculis	L	40·7	43·8	47·0	50·1	56·4	2·6	5·7	8·8	12·0	17. 40. 56·31		56·92	17·00	20·08		....	
	19	Piazzi XVII. 367	C	57·3	0·7	3·8	7·1	13·5	20·0	23·3	26·3	29·5	18. 1. 13·47		13·85			18·91	18. 1. 34·05	− 2·81
	20	μ^1 Sagittarii	C	15·8	18·6	21·7	24·7	30·6	36·5	39·5	42·4	45·4	18. 5. 30·55		30·97	51·16	20·19		18. 5. 51·17	− 2·63
	21	δ Ursæ Minor. (E&E)	C	..	42·0	28·0	15·5	47·5	..	9·0	..	..	18. 14. 48·08		51·81	12·38	20·57		....	
	22	Piazzi XVIII. 72.	C	..	46·9	50·2	53·5	0·1	6·7	..	13·4	..	18. 21. 0·09		0·45				18. 21. 20·67	− 2·95
	23	Piazzi XVIII. 79.	C	47·1	50·4	53·6	57·0	3·7	10·4	13·7	16·6	20·4	18. 22. 3·63		3·99				18. 22. 24·22	− 2·95
	24	Cephei 51 S.P. (E&E)	C	12·0	9·0	..	..	0·0	..	50·0	..	45·5	18. 36. 58·99		55·54	16·11	20·57		....	
	25	Piazzi XVIII. 160	C	5·4	9·0	12·4	16·0	23·0	30·1	33·6	37·0	40·5	18. 35. 22·97		23·63				18. 35. 43·87	− 2·06
	26	β Lyræ	C	35·0	38·3	41·6	44·9	51·4	58·2	1·4	4·7	8·0	18. 44. 51·47		52·11	12·36	20·25		18. 45. 12·36	− 2·17
	27	⊙ 1 L.	JC	30·8	33·7	36·4	39·3	44·7	50·6	53·3	56·0	58·7	10. 53. 44·80	(+8·32)	49·58			20·58	10. 55. 10·99	
Sept. 5	28	⊙ 2 L.	JC	..	..	44·7	47·6	53·2	58·7	1·6	4·4	7·1	10. 55. 53·14	[+4·75]				[1·83]		
	29	β Leonis	JC	40·3	43·4	46·2	49·1	54·7	0·4	3·3	6·2	9·0	11. 41. 54·70		55·35	16·85	21·50		11. 42. 16·82	− 0·41
	30	☽ 1 L.	JC	45·0	48·0	51·0	54·0	59·9	5·9	8·8	11·7	14·7	16. 34. 59·85		0·36				16. 36. 26·68	
	31	κ Ophiuchi	JC	47·5	50·4	53·4	56·0	1·6	7·2	10·1	12·8	15·7	16. 51. 1·61		2·23	24·09	21·86		16. 51. 24·09	− 1·70
	32	η Ophiuchi	JC	10·5	13·4	16·4	19·2	24·9	30·7	33·6	36·5	39·3	17. 2. 24·91		25·42	47·30	21·88		17. 2. 47·30	− 2·19
	33	ξ Ophiuchi	JC	27·1	30·2	33·2	36·2	42·0	47·9	51·0	54·0	57·0	17. 12. 42·04		42·53				17. 13. 4·42	− 2·36
	34	72 Ophiuchi	JC	28·0	31·0	33·8	36·7	42·2	47·7	50·5	53·4	56·2	18. 0. 42·14		42·77	4·75	21·98		18. 1. 4·72	− 2·11
	35	ω Aquilæ	E	0·0	2·8	5·5	8·4	..	19·7	22·5	25·4	28·2	19. 11. 14·03		14·67	36·87	22·20	20·78†	....	
	36	δ Aquilæ	E	13·4	16·2	18·9	21·6	27·2	32·7	35·6	38·4	41·0	19. 18. 27·19		27·79	50·08	22·29		....	
	37	Lætitia	JC	56·2	..	1·9	4·7	10·3	16·0	18·9	..	24·4	21. 56. 10·32		10·86			20·58	21. 56. 33·11	
	38	15 Piscis Australis	JC	44·9	48·1	51·4	55·0	1·6	8·0	11·4	14·8	18·0	22. 2. 1·44		1·87				22. 2. 24·13	− 3·28
	39	θ Aquarii	JC	15·2	18·0	20·8	23·4	29·0	34·7	37·5	40·3	43·1	22. 9. 29·08		29·64	51·87	22·23		22. 9. 51·90	− 3·08
	40	Jupiter 1 L.	JC	9·2	..	14·8	..	..	..	31·8	..	37·5	22. 14. 23·30		25·53				22. 14. 47·80	
	41	Jupiter 2 L.	JC	12·5	..	18·2	..	26·7	..	35·4	..	40·8	22. 14. 26·71		15·28				22. 25. 37·57	
	42	Alexandra	JC	..	..	..	..	14·7	20·1	23·1	25·8	28·6	22. 25. 14·69		21·64				....	
	43	Radcliffe 5776 (E&E)	JC	..	..	..	..	16·0	19·0	20·5	22·0	22·5	22. 29. 15·96		59·69				....	
	44	Lal.(F)1729S.P.(E&E)	JC	..	..	17·0	53·0	..	18·0	55·0	..	..	22. 55. 7·07		4·88				23. 12. 27·23	
	45	Pandora	JC	50·2	53·2	55·8	58·7	4·4	10·0	12·7	15·6	18·7	23. 12. 4·34		39·90				23. 14. 2·25	
	46	Euterpe	JC	25·3	28·4	30·9	33·8	39·2	45·1	47·7	50·6	53·5	23. 13. 39·35		47·58	9·93	22·35		23. 20. 9·94	− 3·09
	47	κ Piscium	JC	..	..	38·7	41·4	47·0	52·6	55·4	..	..	23. 19. 46·99							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^{r\cdot\cdot}500$.

Corrections for passage of Semidiameter, Nos. 14 and 30, $+64^{s\cdot\cdot}36$ and $+64^{s\cdot\cdot}46$.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

September 4. The azimuthal error by tabular places of δ Ursæ Minoris and Cephei 51 S.P., allowing $0^{s\cdot\cdot}03$ for clock-rate.

September 5. The azimuthal error by tabular places of Radcliffe 5776 and Lalande (F) 1729 S.P., allowing $0^{s\cdot\cdot}03$ for clock-rate.

10, 11. Very cloudy.

14, 30. Correction to R.A. on true Meridian, $+0^{s\cdot\cdot}02$.

27, 28. Cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer	Seconds of Transit over the Wires. I.	II.	III	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Sept. 5	1	Bradley 3166....	JC	..	49·5	55·6	2·4	16·6	30·7	38·2	45·2	..	23. 41. 16·81	−0·18	17·95			20·58	23. 41. 40·34	− 6·16
	2	2 Ceti.....	JC	21·0	23·8	26·7	29·7	35·5	41·4	44·3	47·0	50·0	23. 56. 35·46	(+8·32) [+4·75]	35·97	58·35	22·38	[1·83]	23. 56. 58·37	− 2·92
Sept. 6	3	⊙ 1 L.	K	5·4	8·0	11·0	13·8	19·5	25·2	27·9	30·8	33·6	10. 57. 19·43	(+7·90)	24·13			22·62		
	4	⊙ 2 L.	K	..	16·7	19·5	22·2	27·9	33·5	36·2	39·1	..	10. 59. 27·84	[+2·45]				[1·85]	10. 58. 47·60	
	5	☽ 1 L.....	K	3·8	6·9	9·9	12·7	19·0	24·9	28·0	31·0	33·8	17. 26. 18·97		19·31				17. 27. 47·85	
	6	μ^1 Sagittarii.....	C	12·2	15·3	18·2	21·2	27·1	33·1	36·0	38·9	41·7	18. 5. 27·05		27·38	51·12	23·74	22·41†	....	
	7	η Serpentis.....	C	49·9	52·7	55·3	58·1	..	..	12·0	14·7	17·6	18. 14. 3·67		4·10	27·98	23·88		....	
	8	μ Aquilæ	K	59·6	2·4	5·1	8·0	13·4	19·1	21·9	24·6	27·4	19. 27. 13·47		13·96	38·10	24·14	22·62	19. 27. 38·08	− 2·59
	9	σ Draconis	K	34·9	42·9	50·9	58·7	14·4	30·3	38·2	45·9	53·7	19. 32. 14·36		15·64				19. 32. 39·77	− 2·87
	10	α Aquilæ	K	..	..	..	..	..	1·4	4·1	6·9	9·6	19. 43. 55·67		56·17	20·28	24·11		19. 44. 20·32	− 2·66
	11	17 Vulpeculæ....	K	..	36·4	39·4	42·4	48·4	54·6	57·5	0·5	..	20. 0. 48·43		49·01				20. 1. 13·17	− 2·68
	12	ε Delphini	K	15·4	18·4	21·2	24·0	29·6	35·3	38·2	41·0	43·6	20. 26. 29·60		30·11	54·31	24·20		20. 26. 54·30	− 2·83
	13	Bradley 2673....	K	27·5	36·6	45·4	54·5	12·4	30·4	39·4	48·4	57·2	20. 30. 12·35		13·75				20. 30. 37·95	− 4·31
	14	ε Aquarii	K	52·6	55·6	58·4	1·2	6·8	12·4	15·3	18·0	20·9	20. 40. 6·77		7·16	31·37	24·21		20. 40. 31·37	− 2·97
	15	Lætitia.....	K	15·4	18·4	21·2	23·9	29·6	35·4	..	..	43·7	21. 55. 29·60		29·99				21. 55. 54·30	
	16	20 Cephei.....	K	7·8	14·0	19·9	25·7	37·5	49·5	55·4	1·3	7·2	22. 0. 37·54		38·58				22. 1. 2·89	− 4·65
	17	Jupiter 1 L.....	K	38·4	..	44·1	..	52·6	..	1·1	..	6·6	22. 13. 52·55		54·76				22. 14. 19·09	
	18	Jupiter 2 L.....	K	42·2	..	47·7	..	56·1	..	4·8	..	10·3	22. 13. 56·21							
	19	μ Pegasi.....	K	58·2	1·5	4·5	7·5	13·5	19·7	22·6	25·7	28·8	22. 43. 13·53		14·12	38·50	24·38		22. 43. 38·49	− 3·35
	20	λ Aquarii	K	4·8	7·6	10·4	13·3	18·7	24·4	27·3	30·0	32·8	22. 45. 18·78		19·18	43·45	24·27		22. 45. 43·55	− 3·07
	21	56 Pegasi.....	K	1·3	4·4	7·4	10·6	16·6	22·8	25·8	28·8	31·8	23. 0. 16·58		17·18				23. 0. 41·57	− 3·39
	22	Pandora	K	53·9	56·7	59·7	2·3	7·8	13·6	16·4	19·3	22·1	23. 11. 7·95		8·34				23. 11. 32·75	
	23	κ Piscium.....	K	..	34·0	36·8	39·5	45·1	50·6	53·4	56·1	..	23. 19. 45·04		45·30	9·94	24·44		23. 20. 9·90	− 3·10
	24	66 Piscium.....	K	56·4	59·3	2·4	5·4	11·2	17·0	19·8	22·5	25·7	0. 47. 11·05		11·60			24·47	0. 47. 36·13	− 3·25
	25	Neptune	K	6·6	9·6	..	15·0	20·6	26·2	..	31·6	34·4	0. 55. 20·55		21·02				0. 55. 45·56	
	26	Polaris	K	31·0	26·0	..	11·0	..	..	..	31·0	22·0	1. 11. 56·66		9·33	33·92	24·59		....	
	27	θ Ceti.....	K	46·2	49·0	51·9	54·7	0·3	5·9	8·6	11·4	14·2	1. 17. 0·22		0·62	25·23	24·61		1. 17. 25·19	− 2·73
	28	Regulus	E	37·8	40·6	43·5	46·4	51·9	57·7	..	..	..	10. 0. 51·97	(+9·56)	52·58	17·75	25·17	24·50 [1·86]	10. 1. 17·86	
Sept. 7	29	⊙ 1 L.	E	..	..	..	..	..	..	..	5·4	8·1	11. 0. 54·17		58·81				11. 2. 24·16	
	30	⊙ 2 L.	E	..	51·1	54·0	56·7	2·4	8·0	10·7	13·4	..	11. 3. 2·30							
	31	72 Ophiuchi	JC	..	..	..	..	..	..	46·9	49·7	52·6	18. 0. 38·53		39·12	4·72	25·60	24·22†	....	
	32	μ^1 Sagittarii.....	JC	..	..	..	..	..	..	34·2	37·1	39·8	18. 5. 25·14		25·51	51·11	25·60		....	
	33	η Serpentis.....	JC	47·9	50·7	53·4	56·2	1·7	7·4	10·1	12·8	15·6	18. 14. 1·73		2·23	27·96	25·73		....	
	34	☽ 1 L..... ..	E	31·3	34·4	37·4	40·4	..	52·5	55·5	58·5	1·4	18. 17. 46·40		46·78			24·50	18. 19. 17·31	
	35	α Lyræ.....	E	..	47·3	50·8	54·4	1·3	8·4	11·9	15·5	..	18. 32. 1·33		2·17	28·09	25·92		18. 32. 28·11	− 1·96
	36	Piazzi XVIII. 160	E	59·3	2·9	6·5	..	17·1	..	27·7	31·1	34·6	18. 35. 17·00		17·83				18. 35. 43·77	− 1·99
	37	β Lyræ.....	JC	29·4	32·7	..	39·4	45·9	52·6	..	59·1	2·5	18. 44. 45·91		46·70	12·30	25·60	24·22†	....	
	38	ξ^2 Sagittarii.....	E	9·1	12·2	15·0	18·2	23·9	30·1	32·9	35·8	38·8	18. 49. 23·97		24·34			24·50	18. 49. 50·29	− 2·76
	39	ο Sagittarii.....	E	..	7·2	10·2	13·1	19·0	25·0	28·0	31·0	..	18. 56. 19·04		19·40				18. 56. 45·36	− 2·80
	40	ω Aquilæ	E	..	..	..	4·6	10·2	16·0	18·7	21·4	24·4	19. 11. 10·21		10·81	36·84	26·03		19. 11. 36·80	− 2·45
	41	32 Vulpeculæ ...	E	14·1	..	..	..	29·7	36·0	39·1	42·3	..	20. 48. 29·72		30·45	56·48	26·03		20. 48. 56·56	− 2·95
	42	ξ Aquarii	E	2·7	5·4	8·1	..	..	22·2	24·9	27·7	30·5	21. 30. 16·53		16·99	43·19	26·20		21. 30. 43·15	− 3·05
	43	Bradley 2854 ...	E	..	..	30·8	39·4	55·8	12·4	20·9	29·4	37·8	21. 36. 55·78		57·43				21. 37. 23·60	− 5·43
	44	Lætitia.....	E	35·6	38·4	41·2	44·2	49·6	55·3	58·2	1·0	3·7	21. 54. 49·65		50·09				21. 55. 16·29	
	45	15 Cephei	E	..	..	..	..	11·0	22·1	27·5	32·7	38·2	21. 59. 11·12		12·31				21. 59. 38·51	− 4·39
	46	θ Aquarii	E	11·2	14·0	16·8	19·7	..	30·7	33·5	36·4	39·2	22. 9. 25·16		25·62	51·88	26·26		22. 9. 51·83	− 3·09

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Corrections for passage of Semidiameter, Nos. 5 and 34, +64s·57: and +64s·60.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
September 6 and 7. The azimuthal error used is that determined on September 6 by tabular places of Polaris and θ Ceti, allowing 0s·01 for clock-rate.

3, 4, 8, 10, 11, 12, 14. Very cloudy.
5. Immediately after the above time the Moon disappeared behind clouds, and no observation of N.P.D. could be made. Correction to R.A. on true Meridian, +0s·01.
31. Cloudy.
34. Correction to R.A. on true Meridian, +0s·01.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth]	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
														+0·11						
Sept.15	1	ν Piscium	JC	..	..	..	..	..	..	1·2	3·8	6·6	1. 33. 52·73	(+10·17)	53·51	33·69	40·18	40·10	....	
	2	o Piscium	JC	30·3	33·2	36·1	38·9	44·5	50·0	52·8	55·6	58·4	1. 37. 44·39	[+6·24]	45·20			[1·74]	1. 38. 25·42	— 3·09
Sept.16	3	γ Aquilæ	D	2·3	5·0	7·8	10·7	16·2	21·9	24·8	27·6	30·3	19. 39. 16·26	−0·13	16·87	58·67	41·80	40·47†	....	
	4	α Aquilæ	D	23·8	26·8	29·7	32·4	37·8	43·4	46·1	49·1	51·8	19. 43. 37·85	(+9·86)	38·46	20·16	41·70	[1·56]	....	
	5	ρ Capricorni	K	22·2	25·3	28·1	31·1	36·9	42·8	45·7	48·5	51·5	20. 20. 36·87	[+2·52]	37·26	19·13	41·87	40·56	20. 21. 19·14	— 2·88
	6	ε Delphini	K	57·7	0·4	3·2	6·1	11·8	17·5	20·3	23·2	25·9	20. 26. 11·76		12·38	54·19	41·81		20. 26. 54·26	— 2·71
	7	Bradley 2673	K	8·7	18·0	27·0	36·0	53·8	12·0	..	..	..	20. 29. 53·84		55·64				20. 30. 37·53	— 3·79
	8	α Delphini	K	33·3	36·3	39·3	42·2	..	53·6	56·4	59·3	2·1	20. 32. 47·78		48·43	30·38	41·95		20. 33. 30·32	— 2·74
	9	49 Cygni	K	..	46·7	49·9	53·1	59·6	6·1	9·6	12·8	..	20. 34. 59·65		0·45				20. 35. 42·34	— 2·77
	10	Jupiter 1 L	K	50·0	..	55·8	..	4·1	..	12·7	..	18·3	22. 9. 4·17		} 6·38				22. 9. 48·37	
	11	Jupiter 2 L	K	53·6	..	59·2	..	7·7	..	16·2	..	21·9	22. 9. 7·71							
	12	β Lacertæ	K	18·8	23·1	27·7	32·1	40·9	49·9	54·2	58·8	3·1	22. 17. 40·86		41·91				22. 18. 23·91	— 3·99
	13	Groombridge 3804	K	36·8	40·3	43·9	47·4	54·4	1·7	5·2	8·8	12·3	22. 25. 54·50		55·38				22. 26. 37·39	— 3·59
	14	η Aquarii	K	10·2	24·1	..	.	..	19·6	33·4	..	..	....						....	
	15	η Aquarii	K	38·0	40·8	43·4	46·2	51·8	57·4	0·0	2·9	5·5	22. 27. 51·75		52·28	34·32	42·04		22. 28. 34·29	— 3·09
	16	19 Piscis Australis	K	2·7	6·0	9·0	12·3	18·7	25·2	28·1	31·4	34·6	22. 34. 18·63		18·92				22. 35. 0·94	— 3·17
	17	μ Pegasi	K	10·2	25·4	..	..	..	25·9	41·1	..	..	....						....	
	18	μ Pegasi	K	40·5	43·8	46·7	49·7	55·8	1·8	4·8	7·9	10·9	22. 42. 55·74		56·46	38·51	42·05		22. 43. 38·49	— 3·36
	19	λ Aquarii	K	19·0	33·0	..	..	..	28·8	43·0	..	..	....						....	
	20	λ Aquarii	K	46·8	49·8	52·8	55·4	0·8	6·7	9·4	12·2	15·0	22. 45. 0·96		1·44	43·47	42·03		22. 45. 43·47	— 3·09
	21	Bradley 3067	K	..	..	..	..	22·8	55·0	11·4	26·7	43·3	22. 58. 22·77		25·67				22. 59. 7·72	—10·93
	22	23 Cassiopeiæ	K	..	..	50·6	0·4	20·9	40·8	51·2	..	..	0. 38. 20·67		22·65			42·12	0. 39. 4·81	— 8·69
	23	i¹ Piscium	K	49·8	53·1	56·1	59·2	..	11·7	..	17·9	21·0	0. 42. 5·41		6·16				0. 42. 48·33	— 3·53
	24	i² Piscium	K	50·3	53·6	56·6	59·6	..	12·0	..	18·1	21·4	0. 42. 5·81		6·56				0. 42. 48·73	— 3·53
Sept.17	25	ψ² Sagittarii	E	26·9	29·9	33·0	36·0	42·0	48·4	51·4	54·6	57·6	19. 6. 42·17	(+10·91)	42·53	25·70	43·17	42·08	....	
	26	δ Draconis	E	..	..	26·4	33·7	48·0	2·4	9·7	..	..	19. 11. 47·96		49·67			[1·31]	19. 12. 32·80	— 1·77
	27	μ Aquilæ	E	..	..	..	..	..	59·9	2·7	5·3	8·0	19. 26. 54·18		54·82	37·94	43·12		....	
	28	α Aquilæ	E	22·4	25·2	28·1	30·9	36·3	41·9	44·7	47·6	50·4	19. 43. 36·36		37·02	20·14	43·12		....	
	29	α Arietis	JC	45·2	48·3	51·2	54·1	0·1	6·2	9·1	12·2	15·2	1. 59. 0·15		0·93	44·22	43·29	43·18†	....	
	30	α Ceti	D	24·8	27·5	30·1	33·0	38·4	..	..	..	..	2. 54. 38·51		39·13	22·49	43·36		....	
	31	Regulus	HC	19·2	22·1	24·9	27·7	33·5	39·1	..	..	..	10. 0. 33·40	(+10·17)	34·05	17·90	43·85	43·07	10. 1. 17·81	— 0·71
	32	γ¹ Leonis	HC	..	..	..	..	54·1	0·2	3·1	6·1	9·0	10. 11. 54·20		54·91	38·81	43·90	[1·65]	10. 12. 38·68	— 0·63
Sept.18	33	α Coronæ	HC	3·6	6·8	9·8	13·0	19·2	25·6	..	..	34·9	15. 28. 19·22		19·99	4·10	44·11		15. 29. 4·12	— 0·64
	34	ι Lyræ	HC	..	..	40·0	43·4	50·0	57·0	0·3	..	..	19. 1. 50·10		50·96				19. 2. 35·34	— 1·98
	35	δ Draconis	HC	..	..	..	..	..	..	8·4	15·9	23·0	19. 11. 46·85		48·43				19. 12. 32·82	— 1·72
	36	β Aquilæ	L	50·4	53·3	56·1	59·0	4·3	10·1	..	..	..	19. 48. 4·41		5·01	49·30	44·29	42·92†	....	
	37	17 Vulpeculæ	HC	13·0	15·9	19·0	..	..	..	..	..	..	20. 0. 27·99		28·73			43·07	20. 1. 13·17	— 2·50
	38	Bradley 2618	HC	23·4	27·1	30·8	34·2	41·6	48·9	52·6	56·2	59·8	20. 12. 41·60		42·51				20. 13. 26·97	— 2·60
	39	α Delphini	L	31·1	34·0	..	..	45·4	51·1	54·0	57·0	59·6	20. 32. 45·38		46·04	30·36	44·32	42·92†	....	
	40	β Cephei	HC	..	..	50·3	58·6	14·7	30·8	38·9	..	..	21. 26. 14·57		16·29			43·07	21. 27. 0·83	— 4·76
	41	Bradley 2841	HC	45·5	49·1	52·9	56·4	3·7	11·0	14·8	18·2	22·0	21. 37. 3·70		4·62				21. 37. 49·18	— 3·29
	42	11 Cephei	HC	..	..	51·6	59·9	16·4	33·7	41·8	..	..	21. 39. 16·58		18·35				21. 40. 2·91	— 5·14
	43	ι Pegasi	HC	51·9	55·0	58·0	1·0	7·1	13·3	16·2	19·3	22·4	22. 0. 7·10		7·84	52·42	44·56		22. 0. 52·42	— 3·20
	44	Brad. 2935 (1st Star)	HC	..	..	11·8	32·2	..	54·2	..	..	..	22. 2. 12·96		16·65				22. 3. 1·24	—10·95
	45	Brad. 2935 (2d Star)	HC	..	..	18·4	38·7	19·9	..	..	..	..	22. 2. 19·65		23·34				22. 3. 7·93	—10·95

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·500.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

September 16 to 18. The azimuthal error used is that determined on September 18 by tabular places of γ Pegasi and Polaris, allowing 0s·07 for clock-rate.

14, 17, 19. Observed over wires N, O, Y, Z.

30, 44, 45. Very cloudy.

31. Cloudy.

32. Very faint and tremulous.

36. Very faint; cloudy.

38. A close double star; the second, which was the larger, was observed.

39. Cloudy during the passage over the other wires.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	s	s	s	s	s	h m s	s
Sept. 18	1	β Lacertæ	HC	16·1	20·7	25·1	29·6	38·3	47·2	51·7	56·2	0·7	22. 17. 38·36	−0·13	39·45			43·07	22. 18. 24·05	−3·98
	2	∂¹ Cephei	HC	5·8	11·1	16·2	21·4	31·7	..	..	..	..	22. 23. 31·72	(10·17)	32·94			[1·65]	22. 24. 17·55	−4·39
	3	∂² Cephei	HC	7·0	12·1	17·2	22·5	32·7	..	..	..	..	22. 23. 32·78	[+2·52]	34·00				22. 24. 18·61	−4·39
	4	μ Pegasi	HC	38·1	41·1	44·1	47·2	53·1	59·2	2·3	5·3	8·3	22. 42. 53·16		53·89	38·50	44·61		22. 43. 38·53	−3·35
	5	ι Cephei	HC	..	..	56·4	3·2	16·6	29·8	36·7	..	..	22. 44. 16·47		17·95				22. 45. 2·59	−5·39
	6	α Pegasi	HC	..	..	..	20·7	26·1	32·0	34·9	37·8	40·6	22. 57. 26·28		26·94	11·47	44·53		22. 58. 11·59	−3·26
	7	56 Pegasi	HC	41·1	44·0	47·1	50·1	56·2	2·4	5·5	8·4	11·6	22. 59. 56·23		56·98				23. 0. 41·63	−3·41
	8	12 Andromedæ	HC	..	32·9	36·3	39·9	46·8	53·8	57·1	0·7	..	23. 13. 46·75		47·63				23. 14. 32·30	−3·78
	9	Piazzi XXIII. 133	HC	..	..	55·1	58·0	3·7	9·4	12·3	..	..	23. 30. 3·67		4·12				23. 30. 48·81	−3·09
	10	Piazzi XXIII. 200	HC	26·7	29·6	32·4	35·2	40·9	46·4	49·2	52·1	54·9	23. 42. 40·80		41·27				23. 43. 25·97	−3·09
	11	83 Pegasi	HC	58·1	1·1	4·1	7·0	13·0	18·9	21·9	24·8	27·8	23. 45. 12·94		13·65				23. 45. 58·35	−3·44
	12	ω Piscium	HC	33·1	35·8	38·7	41·3	46·9	52·3	55·2	58·0	0·7	23. 51. 46·86		47·46	32·15	44·69		23. 52. 32·17	−3·22
	13	87 Pegasi	HC	14·4	17·4	20·4	23·3	28·9	34·8	37·8	40·6	43·4	0. 1. 28·97		29·65			44·72	0. 2. 14·37	−3·40
	14	γ Pegasi	HC	27·0	30·0	32·8	35·6	41·4	47·1	50·0	52·8	55·6	0. 5. 41·34		41·99	26·70	44·71		0. 6. 26·72	−3·34
	15	σ Andromedæ	HC	24·4	27·9	31·2	34·6	41·5	48·3	51·8	55·1	58·6	0. 10. 41·46		42·33				0. 11. 27·06	−3·87
	16	42 Piscium	HC	36·5	39·4	42·1	45·0	50·7	56·3	59·2	2·0	4·9	0. 14. 50·65		51·30				0. 15. 36·04	−3·32
	17	47 Piscium	HC	10·4	13·6	16·5	19·2	25·1	31·0	33·8	36·6	39·6	0. 20. 25·06		25·74				0. 21. 10·48	−3·40
	18	52 Piscium	HC	40·7	43·7	46·6	49·4	55·2	1·1	4·1	7·1	9·9	0. 24. 55·28		55·98				0. 25. 40·73	−3·45
	19	B. F. 40	HC	5·2	8·1	11·0	13·9	19·4	25·1	27·9	30·9	33·7	0. 28. 19·43		20·07				0. 29. 4·82	−3·31
	20	Piazzi 0. 148	HC	35·9	39·0	42·1	45·0	51·0	57·2	0·1	3·1	6·1	0. 33. 51·03		51·76				0. 34. 36·52	−3·56
	21	59 Piscium	HC	..	..	..	..	30·0	36·0	39·0	41·8	44·7	0. 39. 30·09		30·78				0. 40. 15·54	−3·43
	22	Neptune	HC	41·5	44·6	..	49·9	55·4	1·1	..	6·7	9·3	0. 53. 55·48		56·06				0. 54. 40·84	
	23	Polaris	HC	9·0	4·0	58·0	52·0	..	..	..	..	..	1. 10. 36·59		54·23	38·99	44·76		....	
	24	e Tauri	JC	..	4·8	7·6	10·4	16·0	21·6	24·3	27·1	..	3. 40. 15·94		16·57			44·71	3. 41. 1·54	−2·73
	25	γ¹ Eridani	JC	52·1	55·0	57·8	0·6	6·2	12·0	15·0	17·8	20·4	3. 51. 6·29		6·74	51·72	44·98	[1·70]	....	
	26	) 2 L.	JC	0·2	..	..	8·9	..	20·8	23·8	26·7	29·5	3. 56. 14·86		15·51				3. 55. 51·40	
	27	ω¹ Tauri	JC	27·6	30·5	33·5	..	..	..	..	..	..	4. 0. 42·23		42·92				....	
	28	Aldebaran	JC	19·9	..	25·9	28·6	34·4	40·1	43·0	..	48·9	4. 27. 34·38		35·05	20·07	45·02		....	
Sept. 19	29	ζ Ophiuchi	P	51·2	54·0	57·0	59·8	5·3	11·0	14·0	16·6	19·3	16. 29. 5·33	[+3·09]	5·83	51·90	46·07	44·80	16. 29. 51·89	−1·68
	30	ζ Herculis	P	..	..	..	..	30·2	37·0	40·2	43·4	46·8	16. 35. 30·37		31·20	17·25	46·05	[1·84]	16. 36. 17·27	−0·86
	31	η Herculis	P	16·0	19·8	23·3	26·9	33·9	41·1	44·8	48·3	51·9	16. 37. 33·97		34·87				16. 38. 20·95	−0·66
	32	Groombridge 2377	P	..	..	..	49·1	59·2	9·4	14·8	19·7	24·8	16. 41. 59·28		c·48				16. 42. 46·56	+0·20
	33	κ Ophiuchi	P	55·0	9·0	..	..	..	5·2	19·2	..	..	....						....	
	34	κ Ophiuchi	P	23·2	26·0	28·7	31·6	37·0	42·9	45·6	48·3	51·0	16. 50. 37·11		37·76	23·83	46·07		16. 51. 23·85	−1·44
	35	ε Herculis	P	10·0	13·4	16·5	19·8	26·1	32·6	35·9	39·2	42·6	16. 54. 26·20		27·02	13·16	46·14		16. 55. 13·12	−1·02
	36	η Ophiuchi	P	17·6	31·9	..	..	..	29·2	43·7	..	..	....						....	
	37	η Ophiuchi	P	46·1	..	51·9	54·8	0·5	6·3	9·2	..	15·0	17. 2. 0·52		0·99	47·04	46·05		17. 2. 47·10	−1·93
	38	ζ Draconis	P	..	..	15·9	23·0	36·1	50·1	56·7	..	..	17. 7. 36·29		37·77				17. 8. 23·88	+0·66
	39	70 Herculis	P	54·2	9·6	..	..	..	10·3	25·7	..	..	....						....	
	40	70 Herculis	P	24·8	27·8	31·0	34·0	39·8	46·1	49·1	52·2	55·1	17. 14. 39·95		40·71				17. 15. 26·83	−1·31
	41	σ Ophiuchi	P	56·0	58·8	1·7	4·4	9·9	15·7	18·2	21·0	23·9	17. 19. 9·92		10·53	56·67	46·14		17. 19. 56·66	−1·70
	42	β Draconis	P	..	21·0	25·8	30·0	39·2	48·3	52·8	57·3	..	17. 26. 39·15		40·26				17. 27. 26·40	−0·58
	43	α Ophiuchi	P	46·3	49·2	52·0	54·9	0·6	6·3	9·0	11·8	14·7	17. 28. 0·51		1·18	47·29	46·11		17. 28. 47·32	−1·62
	44	ω Draconis	P	..	..	32·9	40·6	55·8	11·1	19·0	..	..	17. 36. 55·80		57·41				17. 37. 43·56	+0·47
	45	Jupiter 1 L.	P	32·1	..	37·6	..	46·1	..	54·7	..	0·4	22. 7. 46·17		48·31				22. 8. 34·81	
	46	Jupiter 2 L.	P	35·6	..	40·9	..	49·4	..	58·0	..	3·6	22. 7. 49·49							
	47	γ Aquarii	P	21·6	35·4	..	..	..	30·9	44·7	..	..	....						....	
	48	γ Aquarii	P	49·3	52·0	54·7	57·7	3·1	8·9	11·3	14·3	17·0	22. 14. 3·12		3·69	50·22	46·53		22. 14. 50·19	−3·07

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31ʳ·500.
Correction for passage of Semidiameter, No. 26, −69ˢ·12.
September 19 to 21. The azimuthal error used is that determined by Polaris, Polaris S.P., and Polaris on September 19 and 20.

22. Very faint; observed with the wires illuminated.
29. Tremulous.
36, 37, 45, 46. Very faint; cloudy.
24, 25. Cloudy.
32. Very faint.
26, 27. Very cloudy.
26. Correction to R.A. on true Meridian, +0ˢ·03.
33, 36, 39, 47. Observed over wires N, O, Y, Z.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Sept. 24	1	α Aquilæ	K	9·8	12·7	15·3	18·1	23·6	29·2	32·2	34·9	37·8	19. 43. 23·71	+0·03	24·42	20·03	55·61	54·24	19. 44. 20·07	− 2·41
														(+10·88)	57·19			[1·72]	19. 45. 52·84	− 2·23
	2	* N.P.D. 57°. 27′ .	K	..	..	..	..	..	3·0	6·1	9·2	12·9	19. 44. 56·27	[+3·51]	47·44	43·05	55·61		20. 10. 43·12	− 2·69
	3	α^2 Capricorni	K	32·7	35·6	38·3	41·1	47·0	52·7	55·4	58·2	1·2	20. 9. 46·88						....	
	4	β Capricorni	K	55·8	10·0	..	..	..	7·4	21·6	..	..	....		39·23	34·87	55·64		20. 13. 34·92	− 2·72
	5	β Capricorni	K	24·3	27·0	30·1	33·0	38·9	44·5	47·5	50·3	53·0	20. 12. 38·70						....	
	6	ε Delphini	K	15·2	29·6	..	..	..	25·7	39·9	..	..	....		58·39	54·08	55·69		20. 26. 54·09	− 2·60
	7	ε Delphini	K	43·4	46·6	49·2	52·0	57·6	3·4	6·1	9·1	11·8	20. 25. 57·66		41·55				20. 30. 37·26	− 3·32
	8	Bradley 2673 ...	K	..	..	12·6	21·7	39·6	57·8	6·6	..	..	20. 29. 39·56		46·60				20. 35. 42·31	− 2·64
	9	49 Cygni	K	..	..	..	..	45·7	52·2	55·6	58·8	1·9	20. 34. 45·69		0·50	56·25	55·75		20. 48. 56·23	− 2·72
	10	32 Vulpeculæ....	K	44·0	47·3	50·4	53·4	59·8	5·8	9·0	12·1	15·2	20. 47. 59·63		19·91				20. 52. 15·65	− 2·82
	11	ν Cygni.....	K	..	..	..	..	..	26·1	29·9	33·6	37·2	20. 51. 18·89							
	12	Jupiter 1 L.....	K	30·0	..	35·9	..	44·0	..	52·8	..	58·5	22. 5. 44·23		} 46·46				22. 6. 42·28	
	13	Jupiter 2 L.	K	33·4	..	39·1	..	47·6	..	56·1	..	1·8	22. 5. 47·59		13·80			55·96	0. 41. 9·81	− 5·38
	14	η Cassiopeiæ	K	..	..	..	2·4	12·8	22·8	27·6	32·9	37·9	0. 40. 12·48		40·38				0. 47. 36·40	− 3·47
	15	66 Piscium.....	K	25·0	28·1	31·0	33·9	..	45·2	48·3	51·3	54·2	0. 46. 39·60		9·63				0. 54. 5·65	
	16	Neptune.....	K	55·0	58·1	0·7	3·5	..	14·4	17·2	20·0	23·0	0. 53. 8·96		47·87				1. 0. 43·90	− 3·83
	17	78 Piscium.....	K	30·8	34·0	37·1	40·5	47·0	53·4	56·8	0·0	3·1	0. 59. 46·96		45·97	40·96	54·99		1. 11. 42·01	−83·60
	18	Polaris ....(E&E)	K	..	..	..	41·5	26·5	..	12·0	4·0	55·0	1. 10. 28·00		54·07				1. 13. 50·12	− 3·72
	19	l Piscium	K	37·6	40·9	43·8	46·9	53·0	59·7	2·4	5·8	8·9	1. 12. 53·19		49·59				1. 22. 45·65	− 3·44
	20	97 Piscium	K	34·2	37·3	40·1	43·0	48·9	54·8	57·6	0·4	3·3	1. 21. 48·81		29·31	25·52	56·21		1. 24. 25·37	− 3·36
	21	η Piscium.....	K	..	..	20·0	22·8	28·6	34·2	37·2	40·1	43·0	1. 23. 28·56		59·49	55·93	56·44	−56·08	....	
	22	β Tauri.....	D	42·9	46·1	49·1	52·4	58·7	5·1	8·1	11·2	14·3	5. 16. 58·62		18·42	14·91	56·49	[1·66]	....	
	23	δ Orionis	D	..	..	..	..	17·9	23·3	26·1	28·9	31·6	5. 24. 17·79		57·33	53·75	56·42		....	
	24	α Leporis	D	42·3	45·1	48·2	51·1	56·9	2·7	5·6	8·4	11·4	5. 25. 56·82							
															46·36	41·05	54·69	56·10	1. 11. 43·30	−83·69
Sept. 25	25	Polaris S.P. (E&E)	E	35·5	..	21·0	..	..	..	..	..	..	13. 10. 3·06		7·16	4·38	57·22	[1·53]	18. 1. 4·41	− 1·74
	26	72 Ophiuchi	E	52·3	55·2	58·0	0·9	6·4	12·1	15·0	17·8	20·6	18. 0. 6·45		30·40	27·64	57·24		18. 14. 27·66	− 1·97
	27	η Serpentis.....	E	16·0	18·8	21·5	24·2	29·8	35·4	38·2	41·0	43·7	18. 13. 29·77		6·21				18. 18. 3·48	− 1·68
	28	109 Herculis	E	50·4	53·6	56·7	59·3	5·6	11·4	14·3	17·3	20·2	18. 17. 5·39		7·80				18. 20. 5·07	− 1·29
	29	Groombridge 2563	E	..	..	55·6	59·2	6·7	14·4	18·1	..	..	18. 19. 6·76		30·19	27·64	57·45		18. 32. 27·47	− 1·51
	30	α Lyræ	E	11·4	15·1	18·6	22·2	29·2	36·2	40·0	43·4	47·0	18. 31. 29·20		45·91				18. 35. 43·19	− 1·54
	31	Piazzi XVIII. 160	E	27·3	31·0	34·3	37·9	44·9	52·0	55·6	59·1	2·6	18. 34. 44·94		16·78				18. 49. 14·08	− 1·17
	32	θ^1 Draconis.....	E	..	..	59·2	4·6	15·4	26·2	31·9	..	..	18. 48. 15·40		21·42				18. 51. 18·72	− 1·57
	33	13 Lyræ.....	E	1·2	5·2	8·9	12·6	20·3	28·1	31·9	35·8	39·6	18. 50. 20·37		34·96				19. 12. 32·28	− 1·31
	34	δ Draconis	E	..	..	..	..	..	48·0	55·1	2·0	9·2	19. 11. 33·26		22·63	20·02	57·39		19. 44. 19·99	− 2·40
	35	α Aquilæ	E	..	10·8	13·6	16·4	21·9	27·4	30·4	33·2	..	19. 43. 21·93		41·22				19. 48. 38·58	− 2·10
	36	ε Draconis	E	..	..	..	23·1	39·5	55·8	..	..	..	19. 47. 39·39		20·48				19. 57. 17·85	− 6·60
	37	λ Ursæ Min.(E&E)	E	..	..	..	..	58·0	53·5	19·0	45·5	..	19. 55. 57·58		24·35				20. 13. 21·74	− 3·08
	38	κ Cephei.....	E	..	..	..	56·5	21·9	47·3	..	..	..	20. 12. 21·78		56·71	54·07	57·36		20. 26. 54·11	− 2·59
	39	ε Delphini	E	41·9	44·7	47·6	50·4	56·1	1·6	4·6	7·3	10·0	20. 25. 55·99		39·67				20. 30. 37·08	− 3·26
	40	Bradley 2673....	E	..	..	..	..	37·5	55·9	4·9	13·8	22·6	20. 29. 37·67		59·06				20. 36. 56·47	− 2·69
	41	α Cygni	E	38·4	42·4	46·2	50·1	57·9	6·0	9·9	13·8	17·6	20. 35. 57·99		33·86	31·16	57·30		20. 40. 31·28	− 2·76
	42	ε Aquarii	E	19·2	22·1	24·9	27·6	33·4	39·1	41·9	44·4	47·3	20. 39. 33·29		40·45				20. 42. 37·87	− 3·04
	43	η Cephei	E	10·1	16·1	21·8	27·6	38·9	50·8	56·3	2·0	8·0	20. 41. 39·01		39·32				20. 53. 36·75	− 5·35
	44	Bradley 2749 ...	E	..	..	..	..	35·7	8·7	24·2	40·6	56·5	20. 52. 36·22		30·34				21. 15. 27·79	− 3·62
	45	α Cephei	E	..	5·4	11·3	17·3	29·0	40·7	46·6	52·4	..	21. 14. 28·89		5·24				21. 40. 2·72	− 4·87
	46	11 Cephei	E	..	..	38·1	46·9	3·1	20·1	29·0	..	..	21. 39. 3·35		20·73				21. 51. 18·22	− 5·54
	47	79 Draconis.....	E	..	..	50·0	59·9	18·6	38·0	47·3	..	..	21. 50. 18·66		2·61	c·05	57·44		21. 59. 0·11	− 2·98
	48	α Aquarii.....	E	48·2	51·0	53·8	56·6	1·9	7·6	10·2	13·0	15·8	21. 58. 1·98							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S. P.

Reading of Transit-Micrometer, $31^{r}{\cdot}500$.

2. Very faint. 3. Extremely cloudy. 4, 6. Observed over wires N, O, Y, Z. 36, 38. Double; observed the larger.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	s	s	s	s	s	h m s	s
Sept. 25	1	Jupiter 1 L.....	E	7·6	..	13·1	..	21·7	..	30·2	..	..	22. 5. 21·69	+0·03	23·90			56·10		
	2	Jupiter 2 L.....	E	10 7	..	16·6	..	25·1	..	33·6	..	39·1	22. 5. 25·01	(+10·88)				[1·53]	22. 6. 21·41	
	3	Neptune.....	E	..	50·4	53·0	55·9	1·4	7·0	9·9	12·6	..	0. 53. 1·43	[+3·51]	2·10			57 63	0. 53. 59·79	
	4	β Andromedæ ...	E	6·0	9·4	12·8	16·0	23·0	29·7	33·0	36·4	39·8	1. 1. 22·87		23·81	21·53	57·72		1. 2. 21·50	— 3·97
	5	Polaris.... (E&E)	E	..	55·0	44·5	39·5	24·5	15·0	..	..	..	1. 10. 25·24		43·21	41·14	57·93		1. 11. 40·91	—83·78
	6	β Tauri.....	JC	41·8	45·0	47·9	51·2	57·1	3·7	7·0	10·0	13·1	5. 16. 57·39		58·26	55·96	57·70	57·34†	....	
	7	μ Geminorum ...	JC	43·6	46·6	49·7	52·8	58·6	4·6	7·6	10·5	13·5	6. 13. 58·58		59·40	57·11	57·71		....	
Sept. 26	8	⊙ 1 L.....	D	23·7	26·4	29·3	32·0	37·5	43·2	45·8	48·6	51·4	12. 8. 37·51		42·29				12. 10. 40·40	
	9	⊙ 2 L.....	D	32·0	34·8	37·5	40·3	45·8	51·4	54·1	56·9	59·6	12. 10. 45·79							
Sept. 27	10	⊙ 2 L.....	P	6·6	9·4	12·2	..	20·4	..	28·8	31·5	34·1	12. 14. 20·41	[+4·19]	21·08			58·75	12. 14. 16·56	
	11	γ Herculis	P	..	..	..	..	..	9·3	12·2	15·2	18·2	16. 15. 3·42		4·24	4·16	59·92	[1·73]	16. 16. 4·16	— 0·91
	12	η Draconis	P	..	..	51·5	57·6	9·0	20·9	26·8	..	..	16. 21. 9·10		10·53				16. 22. 10·46	+ 1·19
	13	ζ Herculis	P	59·8	3·2	6·4	9·7	16·1	22·6	25·9	29·2	32·6	16. 35. 16·14		17·07	17·07	60·00		16. 36. 17·01	— 0·68
	14	η Herculis	P	1·8	5·4	9·0	12·6	19·8	27·0	30·5	34·1	37·6	16. 37. 19·72		20·74				16. 38. 20·69	— 0·46
	15	κ Ophiuchi.....	P	9·1	11·6	14·6	17·4	23·1	28·5	31·4	34·3	37·2	16. 50. 22·99		23·74	23·69	59·95		16. 51. 23·70	— 1·30
	16	ε Ursæ Minoris ..	P	..	..	28·7	49·3	30·7	11·3	32·7	..	..	16. 58. 30·32		33·97				16. 59. 33·94	+ 8·22
	17	η Ophiuchi.....	P	..	..	..	..	..	52·1	55·0	58·0	0·8	17. 1. 46·39		46·94	46·90	59·96		17. 2. 46·92	— 1·79
	18	α Herculis	P	..	24·2	27·0	30·0	35·5	41·3	..	47·3	..	17. 7. 35·62		36·40	36·36	59·96		17. 8. 36·38	— 1·32
	19	Groombridge 3804	P	..	..	..	..	35·6	43·1	46·8	50·3	53·7	22. 25. 35·88		36·90				22. 26. 37·27	— 3·51
	20	11 Lacertæ	P	24·2	28·2	32·0	35·6	43·3	51·2	54·8	58·6	2·6	22. 33. 43·36		44·43				22. 34. 44·81	— 3·70
	21	ω Piscium.....	P	17·1	19·9	22·5	25·7	31·0	36·6	39·4	42·1	44·9	23. 51. 31·00		31·72	32·19	60·47		23. 52. 32·19	— 3·26
	22	Bradley 3212....	P	29·5	32·9	36·0	38·7	..	51·6	54·7	57·9	0·9	23. 58. 45·25		46·15				23. 59. 46·63	— 3·69
	23	γ Pegasi.....	P	11·2	14·0	17·0	19·8	25·6	31·3	34·2	36·9	39·8	0. 5. 25·50		26·28	26·74	60·46	60·48	0. 6. 26·77	— 3·38
	24	Brad. 1672 S.P. (E&E)	P	..	..	..	4·5	28·0	30·0	30·0	..	..	0. 12. 28·12		13·04	15·09	62·05		....	
	25	49 Piscium.....	P	40·3	43·4	..	..	54·6	..	3·5	6·4	9·2	0. 22. 54·78		55·57				0. 23. 56·08	— 3·42
	26	Polaris ....(E&E)	P	55·0	52·0	43·0	36·5	22·0	..	..	..	..	1. 10. 22·58		39·55	41·54	61·99		....	
	27	θ Ceti	P	10·4	13·4	15·9	18·8	24·5	30·0	32·9	35·6	38·4	1. 16. 24·40		25·02	25·54	60·52		1. 17. 25·59	— 3·04
Sept. 28	28	⊙ 2 L.....	JC	41·6	44·4	47·3	50·0	55·4	1·1	3·9	6·6	9·4	12. 17. 55·49	(+10·02)	56·10			60·39	12. 17. 53·34	
	29	72 Ophiuchi	JC	47·7	50·6	53·4	56·2	1·7	7·4	10·1	13·0	15·7	18. 0. 1·73	[+3·86]	2·40	4·32	61·92	[2·01]	18. 1. 4·30	— 1·68
	30	Bradley 2841....	JC	27·7	31·3	34·9	38·5	45·8	53·2	56·6	0·4	4·0	21. 36. 45·80		46·74				21. 37. 48·94	— 3·15
	31	16 Pegasi.....	JC	..	..	..	..	..	6·9	9·8	12·9	16·1	21. 46. 0·68		1·48	3·74	62·26		21. 47. 3·69	— 3·03
	32	79 Draconis.....	JC	..	..	45·4	55·2	13·8	33·3	42·9	..	..	21. 50. 14·02		15·88				21. 51. 18·10	— 5·40
	33	η Piscis Australis	JC	..	..	..	5·7	11·8	18·0	21·5	..	27·9	21. 52. 11·88		12·30				21. 53. 14·52	— 3·07
	34	Jupiter 1 L.....	JC	..	6·8	..	12·1	17·8	23·6	..	29·2	..	22. 4. 17·87		20·04				22. 5. 22·28	
	35	Jupiter 2 L.....	JC	..	9·8	..	15·5	21·1	26·8	..	32 6	..	22. 4. 21·13							
	36	ζ Pegasi.....	JC	36·1	38·6	41·7	44·4	50·0	55·6	58·6	1·2	3·9	22. 33. 49·99		50·67	52·83	62·16		22. 34. 52·95	— 3·12
	37	α Ursæ Maj. S.P.	JC	..	..	..	..	26·3	38·1	44·3	..	56·6	22. 54. 26·39		26·30				10. 55. 28·61	+ 1·14
	38	Bradley 3094....	JC	7·7	11·7	..	19·9	28·1	36·4	..	44·5	48·7	23. 12. 28·11		29·13				23. 13. 31·46	— 4·15
	39	*b* Aquarii.....	JC	44·5	47·5	50·6	53·5	59·4	5·2	8·4	11·2	14·1	23. 14. 59·34		59·81				23. 16. 2·15	— 3·08
	40	Bradley 3147 (E&E)	JC	18·5	6·0	52·0	38·0	10·5	..	..	..	..	23. 27. 10·54		17·25	19·66	62·41		....	
	41	Piazzi XXIII. 133	JC	31·8	34·7	37·5	40·4	46·0	51·7	54·5	57·4	0·3	23. 29. 46·00		46·52				23. 30. 48·88	— 3·11
	42	Piazzi XXIII. 200	JC	9·2	11·8	14·6	17·7	23·2	28·9	31·6	34·4	37·2	23. 42. 23·15		23·69				23. 43. 26·06	— 3·11
	43	Bradley 3187....	JC	..	..	22·9	43·8	25·6	8·1	29·3	..	..	23. 49. 25·71		29·15				23. 50. 31·53	—15·34
	44	Gr. 1850 S.P. (E&E)	JC	..	..	..	10·0	37·5	3·0	46·0	29·2	12·5	23. 56. 37·15		31·90	35·26	63·36		....	
	45	γ Pegasi.....	JC	9·4	12·3	15·0	18·1	23·6	29·4	32·2	35·2	37·8	0. 5. 23·64		24·35	26·75	62·40	62·40	0. 6. 26·76	— 3·39
	46	Massilia.....	JC	3·2	5·7	8·6	11·3	17·	22·4	25·2	27·9	30·7	0. 32. 16·86		17·50				0. 33. 19·94	

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Corrections for passage of Semidiameter, Nos. 10 and 28, −64s·15: and −64s·18.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.
September 27. The azimuthal error by tabular places of Bradley 1672 S.P. and Polaris, allowing 0s·06 for clock-rate.
September 28. The azimuthal error used is the mean of those (+4″·53 and +3″·19) determined by tabular places of Bradley 3147 and Groombridge 1850 (Red Hill Catalogue 1793) S.P., and of γ Pegasi and Polaris, allowing 0s·03 and 0s·07 for clock-rate in each case respectively.

10, 18. 21, 25. Cloudy.

11, 22. Faint.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire. h m s	Error of Collimation. (Level). [Azimuth]. ″	Seconds of Transit Corrected. s	Tabular R.A. of Known Stars. s	Clock apparently Slow. s	Adopted Clock Slow at 0h Sidereal and [Losing Rate]. s	Apparent R.A. of Center from the Observation. h m s	Correction to Mean R.A. 1867, Jan. 1. s
				s	s	s	s	s	s	s	s	s								
																		10·57		
															48·91			[1·92]	23. 0. 1·32	— 3·18
															6·98	19·38	12·40	10·59†	....	
Oct. 3	1	Var. (R) Pegasi .	HC	34·2	37·0	39·8	42·6	48·2	53·8	56·6	59·4	2·2	22. 59. 48·17	+0·24	49·59			10·57	23. 16. 2·02	— 3·07
	2	γ Piscium.....	D	52·4	55·2	58·0	0·8	6·4	12·0	14·6	17·4	20·2	23. 10. 6·30	(+11·92)	6·64				23. 28. 9·08	—29·16
	3	δ Aquarii.....	HC	34·4	37·4	40·4	43·3	49·1	55·1	58·1	1·0	3·8	23. 15. 49·14	[+2·49]	36·25				23. 30. 48·69	— 3·10
	4	Brad. 3147 (E&E)	HC	4·5	52·5	38·5	24·5	57·0	..	..	..	..	23. 27. 56·95		13·48				23. 43. 25·94	— 3·12
	5	Piazzi XXIII. 133	HC	21·5	24·4	27·3	30·0	35·7	41·4	44·4	47·2	50·0	23. 30. 35·73		50·22				23. 51. 2·69	— 3·56
	6	Piazzi XXIII. 200	HC	58·8	1·8	4·5	7·4	12·8	18·6	21·4	24·2	27·1	23. 43. 12·93		21·76				11. 57. 34·24	+25·84
	7	ψ Pegasi.....	HC	34·1	37·2	40·2	43·3	49·4	55·4	58·6	1·5	4·6	23. 50. 49·33		14·25	26·76	12·51	12·49	0. 6. 26·75	— 3·40
	8	Groom. 1850 S.P. (E&E)	HC	..	36·0	19·5	3·5	..	55·0	39·0	..	..	23. 57. 29·62		40·57				0. 14. 53·08	— 3·06
	9	γ Pegasi.....	HC	59·1	2·0	4·9	7·8	13·5	19·2	22·1	25·0	27·9	0. 6. 13·47		57·79				0. 23. 10·31	— 3·76
	10	ι Sculptoris	HC	24·2	27·7	30·7	33·8	40·4	46·7	49·7	52·9	56·1	0. 14. 40·22		32·12				0. 28. 44·65	
	11	28 Andromedæ ..	HC	41·0	44·3	47·4	50·5	56·8	3·2	6·4	9·6	12·7	0. 22. 56·85		46·77				0. 32. 59·30	— 3·58
	12	Massilia	HC	17·6	20·4	23·1	25·9	31·4	37·0	39·8	42·6	45·4	0. 28. 31·44		45·29				0. 51. 57·85	
	13	55 Piscium	HC	31·1	34·2	37·1	40·1	46·0	51·8	54·8	57·8	0·7	0. 32. 45·92		58·56				0. 53. 11·12	
	14	Lutetia.....	HC	30·6	33·6	36·4	39·3	44·8	50·2	52·9	55·7	58·5	0. 51. 44·64		51·94				1. 11. 4·52	— 3·13
	15	Neptune.....	HC	44·0	46·8	49·6	52·4	57·8	3·5	6·2	9·0	11·8	0. 52. 57·87		28·52	43·30	14·78		1. 11. 41·10	—85·94
	16	41 Ceti.....	HC	37·4	40·2	43·0	45·9	51·4	57·0	59·8	2·5	5·4	1. 10. 51·37		56·16				1. 16. 8·75	— 4·15
	17	Polaris ....(E&E)	HC	35·0	33·0	28·0	23·0	..	..	..	..	..	1. 11. 6·02		13·07	25·63	12·56		1. 24. 25·67	— 3·47
	18	47 Andromedæ ..	HC	37·7	41·2	44·8	48·2	55·2	2·2	5·6	9·0	12·4	1. 15. 55·11		27·97				1. 26. 40·57	— 4·14
	19	η Piscium.....	HC	58·0	0·9	3·8	6·6	12·2	18·0	21·0	23·7	26·6	1. 24. 12·28							
	20	Piazzi I. 104....	HC	9·7	13·2	16·6	20·1	26·9	34·0	37·3	40·7	44·2	1. 26. 26·93							
															48·23	2·66	14·43	12·73	23. 42. 2·67	— 3·08
														(+11·56)	34·06			[1·73]	11. 46. 48·51	+ 0·78
	21	δ Sculptoris	C	32·2	35·4	38·6	41·7	48·1	54·4	57·6	0·7	3·9	23. 41. 48·03	[+0·36]	17·66	32·19	14·53		23. 52. 32·12	— 3·26
Oct. 4	22	γ Ursæ Maj. S.P.	C	..	..	20·0	24·8	..	44·0	48·6	..	..	23. 46. 34·42		31·58			14·46	0. 9. 46·05	
	23	ω Piscium.....	C	3·4	6·1	8·9	11·6	17·2	22·7	25·5	28·4	31·0	23. 52. 17·07		38·61				0. 14. 53·09	— 3·06
	24	Eugenia	C	..	..	..	25·6	..	36·8	39·4	..	..	0. 9. 31·11		55·89				0. 23. 10·38	— 3·76
	25	ι Sculptoris	C	..	..	..	32·1	38·4	44·8	48·0	51·3	54·3	0. 14. 38·42		35·13				0. 27. 49·62	
	26	28 Andromedæ ..	C	39·2	42·4	45·6	48·7	55·1	1·5	4·6	7·6	10·8	0. 22. 55·03		3·72				0. 30. 18·22	— 3·98
	27	Massilia	C	20·4	23·4	26·3	29·1	34·3	40·1	42·9	45·6	48·3	0. 27. 34·46		22·08				0. 34. 36·58	— 3·66
	28	Piazzi 0. 128	C	46·1	49·4	53·0	56·0	2·6	9·4	12·9	16·2	19·7	0. 30. 2·78		48·72				0. 51. 3·24	
	29	Piazzi 0. 148	C	..	..	..	..	..	27·4	30·4	33·4	36·5	0. 34. 21·29		50·44				0. 53. 4·96	
	30	Lutetia.....	C	34·5	37·2	39·9	42·8	48·2	53·6	56·5	59·3	2·1	0. 50. 48·20		51·30	5·89	14·59		0. 56. 5·83	— 3·33
	31	Neptune.....	C	36·0	39·0	41·5	44·4	49·8	55·4	58·2	1·0	3·8	0. 52. 49·87		29·59				1. 0. 44·12	— 3·93
	32	ε Piscium.....	C	36·9	39·5	42·4	45·2	50·7	56·4	59·0	1·8	4·6	0. 55. 50·70		36·09				1. 2. 50·62	— 4·33
	33	78 Piscium.....	C	12·6	15·7	19·1	22·2	28·7	35·2	38·4	41·8	44·9	1. 0. 28·70		28·27	43·51	15·24		1. 11. 42·81	—86·15
	34	44 Andromedæ ..	C	16·6	20·4	24·0	27·7	35·2	42·4	46·1	49·7	53·4	1. 2. 35·03		35·73				1. 13. 50·28	— 3·83
	35	Polaris ....(E&E)	C	..	..	..	18·0	1·5	52·0	..	39·0	31·0	1. 11. 3·04		11·09	25·60	14·51		1. 17. 25·64	— 3·10
	36	l Piscium.....	C	19·4	22·4	25·5	28·7	34·8	41·2	44·3	47·4	50·6	1. 13. 34·89		19·46	33·95	14·49		1. 34. 34·03	— 3·29
	37	θ Ceti.....	C	56·7	59·5	2·3	5·2	10·7	16·2	19·1	21·8	24·7	1. 17. 10·66		2·94	18·20	15·28	14·64	10. 1. 18·15	— 1·01
	38	ν Piscium.....	C	5·0	7·9	10·7	13·4	18·8	24·4	27·4	30·0	32·6	1. 34. 18·88		23·87	39·11	15·24	[1·36]	10. 12. 39·09	— 0·93
	39	Regulus	D	..	..	..	..	2·3	7·9	10·8	13·6	16·5	10. 1. 2·25	(+12·12)						
	40	γ¹ Leonis	D	8·4	11·4	14·2	17·2	23·1	29·1	31·9	35·0	37·8	10. 12. 23·09							
															56·28				12. 43. 16·13	
															28·79	43·60	14·81		1. 11. 44·18	—86·24
Oct. 5	41	⊙ 1 L.....	D	41·8	44·7	47·5	50·3	55·8	1·3	4·0	7·1	9·8	12. 41. 55·78		4·02	19·84	15·82	14·71†	....	
	42	Polaris S.P. (E&E)	D	..	..	..	..	54·0	40·0	..	..	..	13. 11. 54·18		33·18	49·02	15·84		....	
	43	α Aquilæ	E	49·4	52·4	55·0	57·7	3·4	9·0	11·8	14·5	17·4	19. 44. 3·37		13·12	28·85	15·73	14·64	20. 4. 28·90	— 2·38
	44	β Aquilæ	E	18·6	21·5	24·3	27·1	32·6	38·2	40·9	43·6	46·5	19. 48. 32·56		46·01				20. 8. 1·79	— 2·28
	45	θ Aquilæ	D	58·8	1·6	4·3	7·0	12·6	18·2	21·0	23·6	26·4	20. 4. 12·58		27·16	42·87	15·71		20. 10. 42·94	— 2·51
	46	Var. (R) Sagittæ	D	30·9	33·7	36·7	39·6	45·4	51·1	53·9	56·9	59·6	20. 7. 45·28							
	47	α^2 Capricorni....	D	..	..	..	21·1	26·7	32·5	35·3	38·2	41·0	20. 10. 26·76							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31′·500.

Correction for passage of Semidiameter, No. 41, +64′·49.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

October 4 and 5. The azimuthal error by Polaris, Polaris S.P., and Polaris.

1. Of the 9·5 magnitude.
41. Very cloudy.
13. A double star; the larger observed.
42. Cloudy at the passage over the other wires.
24. Excessively faint.
46. Of the 9th magnitude.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire. h m s	Error of Collimation. (Level). [Azimuth]. s	Seconds of Transit Corrected. s	Tabular R.A. of Known Stars. s	Clock apparently Slow. s	Adopted Clock Slow at 0h Sidereal and [Losing Rate]. s	Apparent R.A. of Center from the Observation. h m s	Correction to Mean R.A. 1867, Jan. 1. s
Oct. 5	1	ω^1 Cygni.....	D	22·7	27·0	31·2	35·3	43·8	52·1	56·5	0·6	4·9	20. 22. 43·75	+ 0·24	45·01			14·64	20. 23. 0·80	— 2·29
	2	ζ Cygni	D	46·8	49·8	53·1	56·2	2·5	9·0	12·1	15·4	18·4	21. 7. 2·56	(+12·12)	3·47	19·26	15·79	[1·36]	21. 7. 19·31	— 2·68
	3	α Equulei.....	D	42·9	45·6	48·9	51·3	56·7	2·3	5·0	7·8	10·7	21. 8. 56·77	[+0·36]	57·37	13·11	15·74		21. 9. 13·21	— 2·68
	4	ϵ Pegasi	D	11·6	14·4	17·2	20·0	25·6	31·1	34·0	37·0	39·7	21. 37. 25·59		26·24	42·07	15·83		21. 37. 42·10	— 2·83
	5	16 Cephei	D	..	..	39·3	48·9	7·4	26·0	34·8	44·0	53·3	21. 57. 7·14		9·72				21. 57. 25·60	— 5·10
	6	Jupiter 1 L.....	D	54·6	..	0·4	..	8·7	..	17·5	..	23·2	22. 3. 8·87							
	7	Jupiter 2 L.....	D	57·8	..	3·7	..	12·2	..	20·8	..	26·4	22. 3. 12·17		10·92				22. 3. 26·81	
	8	γ Pegasi	D	55·8	58·8	1·6	4·2	10·0	15·7	18·6	21·4	24·3	0. 6. 10·02		10·72	26·76	16·04	16·00	0. 6. 26·73	— 3·40
	9	Piazzi 0. 128	D	44·3	47·8	51·1	54·5	1·3	8·1	11·4	14·7	18·0	0. 30. 1·22		2·20				0. 30. 18·23	— 3·98
	10	Piazzi 0. 148	D	4·7	7·9	10·9	13·8	19·9	26·0	29·0	31·9	35·2	0. 34. 19·89		20·71				0. 34. 36·74	— 3·66
	11	B. F. 92	D	37·0	40·2	43·2	46·2	52·1	58·5	1·7	4·8	7·6	0. 49. 52·34		53·20				0. 50. 9·25	— 3·75
	12	ϵ Piscium	D	35·2	38·0	40·7	43·5	49·1	54·7	57·5	0·4	3·0	0. 55. 49·09		49·72	5·90	16·18		0. 56. 5·77	— 3·34
	13	Polaris ....(E&E)	D	34·0	31·0	23·0	18·0	..	..	..	..	..	1. 11. 2·83		29·27	43·67	14·40		1. 11. 45·34	—86·31
Oct. 7	14	β Lyræ.....	D	36·0	39·3	42·5	45·9	52·4	59·0	2·4	5·6	9·0	18. 44. 52·43	— 0·07	53·29	11·59	18·30	17·19†	....	
	15	ϵ Aquilæ.....	D	3·6	6·6	9·4	12·3	18·0	23·7	26·6	29·4	32·2	18. 53. 17·95	(+10·83)	18·61	36·89	18·28	[1·41]	....	
	16	α^2 Capricorni....	E	9·8	12·7	15·4	18·3	24·0	29·8	32·5	35·4	38·3	20. 10. 23·99	[+1·34]	24·39	42·84	18·45	17·28	20. 10. 42·85	— 2·48
	17	Lacaille 8427....	E	0·3	3·6	6·7	9·8	16·2	22·7	25·9	29·0	32·1	20. 16. 16·22		16·44				20. 16. 34·91	— 2·69
	18	ρ Capricorni.....	E	45·4	48·4	51·4	54·3	0·0	6·0	8·8	11·7	14·6	20. 21. 0·04		0·39	18·82	18·43		20. 21. 18·87	— 2·57
	19	ϵ Delphini	E	..	23·5	26·3	29·1	34·7	40·4	43·2	46·2	..	20. 26. 34·74		35·36	53·87	18·51		20. 26. 53·84	— 2·39
	20	☽ 1 L.....	E	18·1	21·0	24·0	26·8	32·6	38·6	41·6	44·6	47·4	20. 30. 32·72		33·09				20. 31. 55·66	
	21	ι Ursæ Maj. S.P..	E	27·2	31·4	35·5	39·7	48·3	56·4	0·6	4·7	9·0	20. 49. 48·13		48·08				8. 50. 6·57	— 1·40
	22	θ Capricorni	E	..	0·4	3·3	6·2	11·8	17·6	20·6	23·5	..	20. 58. 11·88		12·23	30·73	18·50		20. 58. 30·73	— 2·72
	23	ν Aquarii	E	50·4	53·3	56·1	58·8	4·4	10·1	13·0	15·8	18·7	21. 2. 4·48		4·89				21. 2. 23·40	— 2·69
	24	Groomb. 3548 (E&E)	E	..	23·0	7·5	52·5	21·5	52·5	..	..	..	21. 25. 22·19		31·08	49·35	18·27		....	
	25	Lal.(F)1479S.P.(E&E)	E	..	..	38·0	34·5	30·5	23·0	19·5	..	..	21. 33. 29·72		17·20	37·92	20·72		....	
	26	α Aquarii.....	E	27·0	29·8	32·4	35·2	40·8	46·3	49·1	51·9	54·7	21. 58. 40·77		41·28	59·94	18·66		21. 58. 59·85	— 2·87
	27	Jupiter 1 L.....	E	25·1	..	30·9	..	39·4	..	48·0	..	53·6	22. 2. 39·39							
	28	Jupiter 2 L.....	E	28·4	..	34·2	..	42·7	..	51·4	..	56·9	22. 2. 42·71		41·44				22. 3. 0·02	
	29	η Aquarii.....	E	1·3	4·2	6·9	9·5	15·1	20·7	23·5	26·2	29·0	22. 28. 15·13		15·64	34·22	18·58		22. 28. 34·24	— 2·99
	30	Groombridge 3834	E	..	..	..	19·5	41·0	3·4	14·0	25·0	36·2	22. 29. 40·89		43·43				22. 30. 2·03	— 6·68
	31	19 Piscis Australis	E	26·0	29·3	32·7	35·8	42·1	48·4	51·7	54·8	57·9	22. 34. 42·05		42·27				22. 35. 0·87	— 3·04
	32	δ Leonis	C	27·8	31·0	33·7	36·8	42·8	48·7	51·7	54·7	57·6	11. 6. 42·73	[−0·17]	43·39	2·61	19·22	18·44	11. 7. 2·53	— 0·69
Oct. 8	33	Venus 1 L.....	C	1·0	3·9	6·7	9·5	15·0	20·7	23·5	26·3	29·1	13. 8. 15·05		15·43			[1·52]	13. 8. 35·06	
	34	Polaris S.P.(E&E)	C	20·0	12·0	4·5	..	..	30·0	..	..	..	13. 11. 46·65		23·88	43·85	19·97		1. 11. 43·16	—86·49
	35	Mercury, center..	C	28·8	31·7	34·8	37·4	43·0	..	..	..	..	13. 52. 43·09		43·40				13. 53. 2·72	
	36	Arcturus	C	1·3	4·2	7·4	10·3	16·0	..	..	..	..	14. 9. 16·07		16·72	36·08	19·36		14. 9. 36·06	— 0·32
	37	72 Ophiuchi	C	29·9	32·9	35·6	38·4	44·2	49·6	52·5	55·2	58·0	18. 0. 44·01		44·55	4·13	19·58		18. 1. 4·13	— 1·49
	38	γ Aquilæ	C	24·0	26·8	29·6	32·4	38·0	43·7	46·4	49·3	52·1	19. 39. 38·00		38·54	58·29	19·75		19. 39. 58·22	— 2·10
	39	δ Cygni	C	..	..	18·5	22·4	30·0	37·9	41·9	..	..	19. 40. 30·10		31·12				19. 40. 50·80	— 1·73
	40	ϵ Draconis	C	35·6	44·1	52·0	0·0	16·2	..	..	..	..	19. 48. 16·11		18·14				19. 48. 37·83	— 1·27
	41	ω^1 Cygni.....	C	18·7	23·0	27·2	31·4	39·8	48·2	52·5	56·7	0·7	20. 22. 39·76		40·87				20. 23. 0·60	— 2·20
	42	θ Capricorni....	C	56·2	59·2	2·0	5·0	10·7	16·6	19·5	22·4	25·4	20. 58. 10·75		11·00	30·71	19·71		20. 58. 30·77	— 2·70
	43	ν Aquarii	C	49·3	52·2	54·9	57·8	3·4	9·3	12·0	14·8	17·6	21. 2. 3·45		3·77				21. 2. 23·54	— 2·67
	44	ζ Cygni	S	42·7	45·8	49·0	52·2	..	4·9	8·2	11·4	14·4	21. 6. 58·55		59·33	19·21	19·88	18·55†	....	
	45	α Equulei.....	S	38·8	41·6	44·4	47·2	52·7	58·2	1·0	3·8	6·6	21. 8. 52·67		53·16	13·06	19·90		....	
	46	☽ 1 L.....	C	52·0	55·0	57·8	0·8	6·6	12·4	15·4	18·4	21·2	21. 21. 6·59		6·89			18·44	21. 22. 30·55	
	47	λ Capricorni.....	C	51·0	53·8	56·7	59·4	5·2	10·8	13·6	16·3	19·4	21. 39. 5·10		5·42				21. 39. 25·23	— 2·81

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Corrections for passage of Semidiameter, Nos. 20, 33, and 46, +64s·08: +0s·36: and +63s·86.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
October 7. The azimuthal error by tabular places of Groombridge 3548 (Red Hill Catalogue 3273) and Lalande (F) 1479 (Red Hill 1418) S.P., allowing 0s·01 for clock-rate.
October 8. The azimuthal error by Polaris S.P. and Polaris, allowing 0s·64 for clock-rate and change of R.A.

11. Very faint.
34. Very faint from clouds.
20, 46. Correction to R.A. on true Meridian, +0s·01.
35. Clouded after the passage over the 5th wire; no observation of N.P.D. could be made.
33. Very faint and tremulous. The image small and tremulous.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
Oct. 17	1	β Leonis	D	29·2	32·2	35·0	37·8	43·6	49·4	52·2	55·2	57·8	11. 41. 43·57	+0·15	44·13	17·19	33·06	32·41	11. 42. 17·21	− 0·75
	2	γ Ursæ Majoris	D	50·8	55·9	0·4	5·3	14·7	24·1	29·1	33·7	38·4	11. 46. 14·67	(+9·46)	15·79			[1·37]	11. 46. 48·87	+ 0·55
	3	Polaris S.P. (E&E)	D	4·0	57·0	..	..	31·0	15·0	10·0	..	..	13. 11. 31·12	[+0·26]	11·37	44·51	33·14		....	
Oct. 18	4	⊙ 1 L.	D	22·4	25·3	28·1	31·0	36·5	42·2	45·0	47·9	50·6	13. 29. 36·52		42·29				13. 31. 15·47	
	5	⊙ 2 L.	D	33·4	36·1	39·0	41·9	47·4	52·9	56·0	58·6	1·4	13. 31. 47·38							
	6	α Andromedæ	D	44·7	47·8	50·8	54·0	0·3	6·6	9·7	12·9	15·9	0. 1. 0·27		0·96	34·71	33·75	33·78	0. 1. 34·74	− 3·67
	7	γ Pegasi	D	38·1	41·1	43·8	46·7	52·3	58·0	1·0	4·0	6·6	0. 5. 52·37		52·92	26·75	33·83		0. 6. 26·70	− 3·39
	8	ι Ceti	D	54·1	57·0	59·6	2·4	8·0	13·7	16·4	19·4	22·1	0. 12. 8·05		8·39	42·12	33·73		0. 12. 42·18	− 3·13
	9	28 Andromedæ	D	20·2	23·4	26·7	29·8	36·0	42·4	45·6	48·8	52·0	0. 22. 36·07		36·77				0. 23. 10·57	− 3·77
	10	ν Orionis	E	12·5	15·3	18·0	21·2	26·8	32·5	35·4	38·2	40·9	5. 59. 26·72	(+10·23)	27·35	1·59	34·24	33·95	6. 0. 1·64	− 2·90
	11	η Geminorum	E	4·1	7·0	10·0	13·0	19·1	25·1	28·0	31·0	33·8	6. 6. 18·98	[+1·09]	19·68	54·00	34·32	[1·37]	6. 6. 53·98	− 3·01
	12	μ Geminorum	E	7·7	10·8	13·8	16·7	23·0	28·7	31·7	34·8	37·6	6. 14. 22·74		23·44	57·81	34·37		6. 14. 57·74	− 2·96
	13	Bradley 937	E	49·9	53·4	56·7	0·0	6·6	13·4	16·8	20·2	23·6	6. 19. 6·70		7·54				6. 19. 41·85	− 3·21
	14	52 Aurigæ	E	43·3	47·1	50·6	54·3	1·4	8·6	12·5	16·0	19·7	6. 29. 1·47		2·38				6. 29. 36·70	− 3·30
	15	☽ 2 L.	E	12·0	15·1	18·0	20·9	27·0	32·9	36·0	39·0	41·8	6. 41. 26·93		27·58				6. 40. 50·62	
	16	ζ Geminorum	E	25·9	29·2	32·1	34·9	40·9	46·8	49·6	52·6	55·6	6. 55. 40·82		41·50				6. 56. 15·84	− 2·64
	17	δ Geminorum	E	23·3	26·3	..	32·1	38·3	44·3	..	50·3	53·2	7. 11. 38·24		38·94	13·26	34·32		7. 12. 13·30	− 2·56
	18	β Leonis	P	27·8	30·7	33·5	..	..	47·9	50·8	53·8	56·5	11. 41. 42·15		42·77	17·21	34·44	33·73	11. 42. 17·21	− 0·77
	19	Polaris S.P. (E&E)	P	..	..	..	..	..	14·0	8·5	3·0	58·0	13. 11. 29·15		9·24	44·51	35·27	[1·44]	1. 11. 43·76	−87·15
Oct. 19	20	⊙ 1 L.	P	6·3	9·2	11·9	14·7	20·3	26·0	28·9	31·6	34·4	13. 33. 20·34		26·24				13. 35. 0·78	
	21	⊙ 2 L.	P	17·3	20·1	22·9	25·7	31·3	37·1	..	..	..	13. 35. 31·54							
	22	17 Vulpeculæ	P	21·7	25·0	27·9	30·8	..	..	..	..	..	20. 0. 36·87		37·58				20. 1. 12·51	− 1·91
	23	θ Aquilæ	P	39·4	42·2	45·0	47·9	53·4	59·1	1·7	4·4	7·2	20. 3. 53·34		53·83	28·61	34·78		20. 4. 28·76	− 2·14
	24	α^2 Capricorni	P	53·1	56·0	58·7	1·7	7·4	13·2	16·0	18·7	21·6	20. 10. 7·35		7·73	42·63	34·90		20. 10. 42·67	− 2·27
	25	β Capricorni	P	..	47·7	50·7	53·5	59·2	5·0	7·8	10·7	..	20. 12. 59·20		59·56	34·45	34·89		20. 13. 34·50	− 2·30
	26	Groombridge 3140	P	34·3	38·0	41·6	45·0	52·1	59·1	2·8	6·4	9·8	20. 14. 52·10		52·99				20. 15. 27·94	− 1·88
	27	ρ^1 Capricorni	P	28·7	31·8	34·7	37·5	43·4	49·3	52·2	54·9	58·1	20. 20. 43·37		43·70	18·61	34·91		20. 21. 18·65	− 2·36
	28	α Aquarii	P	10·4	13·2	16·0	18·8	24·3	30·0	32·6	35·4	38·0	21. 58. 24·27		24·76	59·80	35·04		21. 58. 59·81	− 2·73
	29	Jupiter 1 L.	P	29·9	..	35·6	..	..	..	52·6	..	58·4	22. 0. 44·10		46·05				22. 1. 21·10	
	30	Jupiter 2 L.	P	33·2	..	38·8	..	47·2	..	55·7	..	1·4	22. 0. 47·25							
	31	ι Piscium	P	20·2	23·1	25·6	28·4	..	39·7	42·5	45·1	47·7	23. 32. 34·01		34·54	9·74	35·20		23. 33. 9·68	− 3·16
	32	Bradley 3166	P	..	..	42·0	49·4	3·4	17·6	25·0	..	..	23. 41. 3·40		5·08				23. 41. 40·23	− 5·97
	33	Groombridge 4163	P	..	..	24·8	34·0	53·8	13·5	23·6	..	..	23. 47. 53·83		56·23				23. 48. 31·39	− 7·72
	34	ψ Pegasi	P	11·5	14·6	17·6	20·6	26·6	32·8	35·9	39·0	42·0	23. 50. 26·70		27·42				23. 51. 2·58	− 3·51
	35	Bradley 3212	P	54·6	58·0	1·1	4·4	10·4	17·0	20·0	23·2	26·2	23. 59. 10·52		11·28				23. 59. 46·45	− 3·67
	36	γ Pegasi	P	36·4	39·4	42·4	45·1	51·0	56·4	59·6	2·3	5·3	0. 5. 50·85		51·48	26·75	35·27	35·17	0. 6. 26·66	− 3·39
	37	7 Ceti	P	5·9	8·8	11·6	14·6	20·5	26·4	29·4	32·3	35·4	0. 7. 20·52		20·84				0. 7. 56·02	− 3·07
	38	ρ Andromedæ	P	17·9	21·5	25·0	28·3	35·2	42·4	45·8	49·4	52·8	0. 13. 35·34		36·21				0. 14. 11·39	− 4·00
	39	52 Piscium	P	50·4	53·2	56·1	59·0	5·0	10·7	13·8	16·6	19·5	0. 25. 4·89		5·56				0. 25. 40·75	− 3·56
	40	ε Andromedæ	K	44·0	47·3	50·3	53·5	59·8	6·1	9·2	12·5	15·5	0. 30. 59·77		0·53	35·73	35·20	35·17†	....	
	41	32 Andromedæ	P	5·2	8·9	12·6	16·0	23·2	30·2	33·9	37·4	41·0	0. 33. 23·13		24·02			35·17	0. 33. 59·22	− 4·16
	42	β Ceti	K	7·7	10·5	13·6	16·5	22·2	28·2	31·1	34·0	36·8	0. 36. 22·26		22·59	57·78	35·19	35·17†	....	
	43	23 Cassiopeiæ	P	..	..	57·1	7·3	28·2	48·4	58·3	..	..	0. 38. 27·76		30·02			35·17	0. 39. 5·23	− 8·95
	44	Piazzi 0. 216	P	42·3	45·1	48·0	50·6	56·1	1·6	4·4	7·2	10·0	0. 45. 56·11		56·63				0. 46. 31·85	− 3·32
	45	B. F. 92	P	..	..	..	..	..	39·3	42·6	45·8	48·8	0. 49. 33·28		34·01				0. 50. 9·23	− 3·80
	46	Neptune	P	..	46·6	49·2	52·0	57·4	..	5·9	..	11·2	0. 50. 57·49		58·01				0. 51. 33·23	
	47	35 Ceti	P	..	58·2	0·7	3·5	9·0	14·6	17·4	20·2	..	1. 5. 9·06		9·57				1. 5. 44·80	− 3·33

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^{r}\cdot500$.
Correction for passage of Semidiameter, No. 15, $-71^{s}\cdot32$.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.
October 18 and 19. The azimuthal error by Polaris S.P. and Polaris, allowing $0^{s}\cdot73$ for clock-rate and change of R.A.

6. Cloudy. 9. Very faint; cloudy. 15. Correction to R.A. on true Meridian, $+0^{s}\cdot03$. 18, 19, 20, 21, 23, 46. Very faint.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Oct. 19	1	36 Ceti	P	..	..	..	..	..	39·2	42·0	44·5	47·5	1. 5. 33·5c	+0·15	33·93			35·17	1. 6. 9·17	— 3·22
	2	Polaris (E&E)	P	..	..	..	..	47·0	36·0	30·0	23·0	17·5	1. 10. 47·49	(+10·23)	8·37	44·47	36·10	[1·44]	1. 11. 43·61	—87·11
	3	θ Ceti	P	..	..	..	..	..	55·6	58·6	1·3	4·1	1. 16. 50·06	[+1·09]	50·47	25·70	35·23		1. 17. 25·72	— 3·20
	4	67 Ceti	P	34·4	37·4	40·0	42·7	48·5	54·0	56·8	59·6	2·4	2. 9. 48·39		48·82	24·22	35·40		2. 10. 24·12	— 3·22
	5	Procyon	C	32·6	35·4	38·0	40·8	46·3	51·9	54·8	57·4	0·2	7. 31. 46·35		46·89	22·56	35·67	35·14	....	
	6	Pollux	C	21·1	24·0	27·2	30·4	36·6	43·0	46·2	49·1	52·2	7. 36. 36·61		37·37	12·89	35·52	[1·44]	....	
	7	☽ 2 L.	C	3·0	6·0	9·0	12·0	17·7	23·8	27·0	29·9	32·7	7. 43. 17·87		18·51				7. 42. 43·51	
Oct. 20	8	ε Piscium	D	14·7	17·6	20·4	23·1	28·7	34·4	37·0	39·8	42·6	0. 55. 28·67		29·23	5·96	36·73	36·67†	....	
	9	β Andromedæ	D	27·2	30·7	34·0	37·4	44·1	51·0	54·4	57·6	1·0	1. 1. 44·13		44·97	21·70	36·73	[1·44]	....	
	10	β Cancri	S	28·3	31·1	34·1	36·7	..	..	..	..	..	8. 8. 42·35		42·93	20·15	37·22	36·73	....	
	11	δ Cancri	S	16·9	19·8	22·8	25·6	31·4	37·3	40·3	43·0	46·0	8. 36. 31·43		32·09			[1·44]	8. 37. 9·34	— 1·95
Oct. 22	12	c Sagittarii	JC	35·6	38·9	42·1	45·1	51·4	57·7	1·0	4·0	7·2	19. 53. 51·42	+0·49	51·73	30·82	39·09		....	
	13	θ Aquilæ	JC	..	37·8	40·7	43·4	48·9	54·5	57·2	0·0	..	20. 3. 48·90	(+9·65)	49·43	28·56	39·13		....	
	14	ε Delphini	JC	..	2·5	5·4	8·4	13·8	19·5	22·4	25·3	..	20. 26. 13·87	[+1·87]	14·48	53·61	39·13		....	
	15	Polaris S.P. (E&E)	E	..	..	37·5	30·0	..	3·0	59·5	..	..	13. 11. 19·05	−0·13	3·46	43·90	40·44	39·64	....	
	16	η Ursæ Majoris	E	..	..	..	..	..	..	..	52·4	56·6	13. 41. 35·10	(+9·18)	36·06			[1·59]	13. 42. 16·61	+ 0·98
Oct. 23	17	⊙ 1 L.	E	7·5	10·4	13·0	16·0	21·9	27·4	30·2	33·1	35·8	13. 48. 21·67		} 27·97				13. 50. 8·53	
	18	⊙ 2 L.	E	19·6	22·2	25·0	27·8	33·4	39·3	42·0	44·8	47·6	13. 50. 33·49							
	19	Arcturus	E	40·0	43·0	45·9	49·0	55·0	0·7	3·8	6·7	9·5	14. 8. 54·81		55·43	36·07	40·64		14. 9. 36·01	— 0·31
	20	Venus 1 L	E	..	14·0	..	19·7	..	31·1	33·8	36·8	39·5	14. 18. 25·31		25·69				14. 19. 6·65	
	21	ε Boötis	E	13·9	17·0	20·2	23·4	29·6	35·8	39·0	42·0	45·0	14. 38. 29·51		30·20	10·84	40·64		14. 39. 10·81	— 0·12
	22	β Ursæ Minoris	E	25·5	36·4	46·8	..	..	..	..	..	10·8	14. 56. 18·16		20·11				14. 51. 0·73	+ 6·44
	23	α Coronæ	E	..	10·0	13·0	16·1	22·4	28·7	31·7	34·6	..	15. 28. 22·33		23·02	3·66	40·64		15. 29. 3·69	— 0·20
	24	ζ Ursæ Minoris	E	..	..	..	..	..	..	41·0	54·4	7·9	15. 48. 0·16		2·55				15. 48. 43·24	+ 8·66
	25	72 Ophiuchi	E	8·4	11·4	14·3	17·0	22·5	28·2	31·0	33·6	36·6	18. 0. 22·53		23·07	3·88	40·81		18. 1. 3·91	— 1·24
	26	δ Ursæ Min. (E&E)	E	9·5	57·5	..	..	4·0	38·5	..	..	..	18. 14. 3·99		11·08	51·95	40·87		....	
	27	α Lyræ	E	27·6	31·1	34·6	38·3	45·1	52·4	55·9	59·3	3·0	18. 31. 45·23		46·04	26·92	40·88		18. 32. 26·91	— 0·79
	28	Cep. 51 S.P. (E&E)	E	..	18·5	15·5	12·5	8·5	2·0	..	..	..	18. 37. 8·33		0·66	41·69	41·03		....	
	29	β Lyræ	E	13·2	..	19·8	23·0	29·6	36·2	39·6	..	46·3	18. 44. 29·64		30·39	11·22	40·83		18. 45. 11·27	— 1·03
	30	Jupiter 1 L.	E	15·3	..	21·0	..	29·6	..	38·1	..	43·7	22. 0. 29·53		} 31·42				22. 1. 12·52	
	31	Jupiter 2 L.	E	18·4	..	24·1	..	32·5	..	41·0	..	46·8	22. 0. 32·55							
Oct. 24	32	θ Ceti	C	28·7	31·6	34·5	37·2	42·7	48·4	51·3	54·0	56·7	1. 16. 42·76		43·17	25·71	42·54	42·49	....	
	33	A Cassiopeiæ	C	..	14·8	22·8	30·4	46·2	2·4	10·2	18·4	..	1. 20. 46·37		48·16			[1·70]	1. 21. 30·74	— 7·99
	34	Piazzi I. 104	C	..	..	..	..	..	4·2	7·6	11·1	14·5	1. 25. 57·25		58·03				1. 26. 40·62	— 4·30
	35	ν Piscium	C	37·2	40·0	42·7	45·4	50·9	56·4	59·2	2·1	4·8	1. 33. 50·94		51·45	34·09	42·64		....	
	36	o Piscium	C	28·8	31·5	34·4	37·3	42·8	48·3	51·2	54·0	56·6	1. 37. 42·74		43·28				1. 38. 25·88	— 3·51
	37	Piazzi I. 170	C	..	..	58·8	1·7	9·4	16·5	19·9	..	..	1. 40. 9·22		10·01				1. 40. 52·62	— 4·39
	38	1 Arietis	C	53·7	56·7	59·5	2·6	8·6	14·5	17·4	20·4	23·5	1. 42. 8·51		9·15				1. 42. 51·76	— 3·83
	39	β Arietis	C	23·6	26·7	29·6	32·4	38·2	44·3	47·2	50·2	53·0	1. 46. 38·32		38·95	21·57	42·62		....	
Oct. 25	40	γ Piscium	D	..	..	..	..	34·4	40·0	42·8	45·5	48·2	23. 9. 34·40	[+0·50]	34·83	19·24	44·41	42·62	23. 10. 19·21	— 3·03
	41	b Aquarii	D	2·4	5·4	8·4	11·4	17·2	23·1	26·3	29·1	31·8	23. 15. 17·20		17·42			[1·82]	23. 16. 1·80	— 2·91
	42	κ Piscium	D	11·2	14·0	16·8	19·6	25·0	30·5	33·4	36·2	38·9	23. 19. 25·04		25·45	9·86	44·41		23. 20. 9·84	— 3·02
	43	71 Pegasi	D	52·2	55·1	58·0	1·1	7·0	13·1	16·0	18·9	21·8	23. 26. 6·99		7·58				23. 26. 51·97	— 3·29
	44	γ Cephei	D	15·7	28·0	40·0	52·4	16·4	41·2	53·5	5·4	17·7	23. 33. 16·59		18·97				23. 34. 3·38	— 8·37

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Corrections for passage of Semidiameter, Nos. 7 and 20, −70s·63: and +0s·37.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.
October 22 and 23. The azimuthal error used is the mean of those (+1″·78 and +1″·96) determined by tabular places of Polaris S.P. and Arcturus, and of δ Ursæ Minoris and Cephei 51 S.P., allowing 0s·05 and 0s·02 in each case respectively.
October 25 and 26. The azimuthal error by Polaris, Polaris S.P., and Polaris.

5. The image extremely bad.
14. Faint; cloudy.
7. Correction to R.A. on true Meridian, +0s·03.
30, 31. Very faint.
10. Very faint; cloudy.
40. Cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Nov. 2	1	α Serpentis	JC	33·2	36·0	38·8	41·6	47·4	52·9	55·6	58·4	1·2	15. 36. 47·20	+ 0·15	47·75	43·85	56·10	55·24	15. 37. 43·95	— 0·76
	2	ζ Herculis	JC	3·2	..	9·7	13·0	19·5	26·0	29·2	..	35·7	16. 35. 19·44	(+10·41)	20·25	16·48	56·23	[1·48]	16. 36. 16·51	— 0·09
	3	η Herculis	JC	5·0	8·7	12·2	15·7	22·8	30·0	33·6	37·2	40·7	16. 37. 22·84	[+0·59]	23·75				16. 38. 20·02	+ 0·22
	4	κ Cygni	JC	..	..	..	..	4·5	13·6	18·4	23·0	27·5	19. 13. 4·44		5·63				19. 14. 2·05	— 0·34
	5	☽ 1 L.	JC	52·9	55·8	58·8	2·0	7·8	13·8	16·8	19·7	22·6	19. 18. 7·77		8·07				19. 20. 8·91	
	6	α Vulpeculæ	JC	59·2	2·4	5·3	8·4	14·4	20·6	23·6	26·6	29·6	19. 22. 14·43		15·15	11·60	56·45		19. 23. 11·58	— 1·31
	7	μ Aquilæ	JC	26·2	29·1	31·9	34·6	40·2	45·8	48·5	51·4	54·1	19. 26. 40·17		40·72	37·13	56·41		19. 27. 37·16	— 1·62
	8	α² Capricorni....	E	31·2	34·2	37·0	39·8	45·4	51·0	54·0	56·7	59·5	20. 9. 45·39		45·75	42·40	56·65	55·41†	....	
	9	β Capricorni	E	22·8	26·0	28·7	31·5	37·2	43·0	45·9	48·8	51·5	20. 12. 37·23		37·57	34·21	56·64		....	
	10	ξ Cygni	JC	51·1	55·0	58·6	2·6	10·1	17·8	21·6	25·3	29·1	20. 59. 10·10		11·08			55·24	21. 0. 7·61	— 1·99
	11	θ Ursæ Maj. S.P..	JC	39·9	44·4	48·8	53·3	2·2	11·2	15·9	20·4	25·1	21. 23. 2·41		2·17				9. 23. 58·73	— 1·93
	12	β Cephei	JC	19·0	27·7	35·6	43·8	59·8	15·9	24·0	32·3	40·1	21. 25. 59·71		1·65				21. 26. 58·21	— 2·43
	13	ξ Aquarii	JC	31·6	34·6	37·4	40·1	45·6	51·3	54·0	56·8	59·7	21. 29. 45·65		46·05	42·54	56·49		21. 30. 42·61	— 2·40
	14	11 Cephei	JC	..	28·5	37·0	45·4	1·8	19·0	27·4	35·6	..	21. 39. 1·98		4·00				21. 40. 0·57	— 2·84
	15	η Piscis Australis.	JC	1·4	..	7·8	11·0	17·2	23·6	26·8	..	33·2	21. 52. 17·26		17·44				21. 53. 14·03	— 2·55
	16	ξ¹ Cephei	JC	..	..	41·8	47·7	0·5	13·4	19·5	..	..	21. 59. 0·51		2·07				21. 59. 58·67	— 3·14
	17	ξ² Cephei	JC	..	..	42·5	48·6	1·4	14·2	20·4	..	..	21. 59. 1·35		2·91				21. 59. 59·51	— 3·14
	18	Jupiter 1 L.	JC	32·9	..	38·4	..	47·6	..	55·6	..	1·2	22. 0. 47·13		} 48·90				22. 1. 45·50	
	19	Jupiter 2 L.	JC	35·7	..	41·4	..	50·2	..	58·4	..	4·1	22. 0. 49·95							
	20	θ Aquarii	JC	40·4	43·4	46·0	49·0	54·4	0·0	2·8	5·6	8·4	22. 8. 54·41		54·81	51·39	56·58		22. 9. 51·41	— 2·60
	21	21 Cassiopeiæ ...	JC	13·8	24·0	34·2	44·4	4·5	25·4	35·4	45·6	55·9	0. 36. 4·69		7·07			56·72	0. 37. 3·83	— 8·70
	22	Piazzi 0. 216	JC	20·8	23·7	26·3	29·2	34·7	40·1	43·0	45·6	48·4	0. 45. 34·61		35·12				0. 46. 31·89	— 3·31
	23	Neptune.....	JC	2·2	5·1	7·7	10·5	16·1	21·7	24·4	27·2	30·0	0. 49. 16·07		16·59				0. 50. 13·36	
	24	ϵ Piscium	JC	54·5	57·4	0·2	3·0	8·5	14·1	17·0	19·5	22·4	0. 55. 8·48		9·03	5·95	56·92		0. 56. 5·81	— 3·39
	25	33 Ceti	JC	34·9	37·8	40·6	43·5	49·0	54·5	57·4	0·1	2·9	1. 2. 48·93		49·43				1. 3. 46·21	— 3·34
	26	38 Ceti	JC	..	..	..	..	..	13·3	16·1	18·7	21·6	1. 7. 7·69		8·15				1. 8. 4·94	— 3·30
	27	Polaris ....(E&E)	JC	53·5	..	..	42·0	20·0	13·5	..	..	52·0	1. 10. 23·52		45·61	42·54	56·93		1. 11. 42·40	—85·18
	28	* N.P.D. 55°. 26′ .	JC	12·4	15·8	19·0	22·6	29·3	35·9	39·3	42·6	46·1	1. 33. 29·19		30·23				1. 34. 27·05	— 4·27
	29	1 Arietis	JC	39·3	42·2	45·1	48·4	54·2	0·0	3·1	6·1	9·0	1. 41. 54·13		54·82				1. 42. 51·64	— 3·87
	30	50 Cassiopeiæ ...	JC	..	..	..	..	17·8	35·9	44·9	53·7	2·7	1. 51. 18·13		20·25				1. 52. 17·08	— 9·04
	31	67 Ceti.....	JC	13·2	15·9	18·6	21·4	26·9	32·5	35·4	38·1	40·9	2. 9. 26·96		27·37	24·32	56·97		2. 10. 24·22	— 3·32
	32	Piazzi II. 61	JC	22·9	26·5	30·1	33·7	41·4	48·5	52·1	55·7	59·4	2. 13. 41·11		42·05				2. 14. 38·91	— 4·72
	33	η Tauri	JC	26·0	29·3	32·2	..	41·2	..	50·4	53·3	56·4	3. 38. 41·23		41·94	38·97	57·03		3. 39. 38·89	— 4·03
	34	Eurynome	JC	47·8	50·6	53·4	56·5	2·1	8·0	10·9	13·7	16·4	3. 44. 2·13		2·76				3. 44. 59·71	
Nov. 3	35	γ Aquilæ	D	45·2	48·1	51·0	53·7	59·2	4·8	7·7	10·6	13·4	19. 38. 59·27		59·85	57·83	57·98	56·93†	....	
	36	α Aquilæ	D	6·8	9·7	12·4	15·2	20·8	26·5	29·4	32·0	34·9	19. 43. 20·83		21·39	19·33	57·94	[1·25]	....	
	37	θ Aquilæ	C	16·2	19·1	21·8	24·5	30·0	35·6	38·4	41·2	43·9	20. 3. 30·05		30·52	28·36	57·84	56·73	....	
	38	☽ 1 L.	C	40·6	43·7	46·7	49·8	55·6	..	..	7·7	10·4	20. 8. 55·60		55·92				20. 10. 57·71	
	39	ρ Capricorni.....	C	5·7	8·7	11·6	14·5	20·4	26·2	29·0	31·9	35·0	20. 20. 20·31		20·62	18·35	57·73		....	
	40	ϵ Delphini	C	41·0	43·8	46·5	49·4	55·0	0·7	3·7	6·2	9·1	20. 25. 55·01		55·60	53·40	57·80		....	
	41	τ² Capricorni....	C	39·6	42·4	45·3	48·2	54·0	59·8	2·5	5·4	8·4	20. 30. 53·93		54·27				20. 31. 52·07	— 2·13
														+0·37						
Nov. 4	42	α Aquilæ	JC	..	..	11·2	14·1	19·7	25·4	28·2	31·0	33·7	19. 43. 19·70	(+10·97)	20·34	19·32	58·98	58·04†	....	
	43	β Aquilæ	JC	35·0	38·0	40·8	43·3	49·0	54·5	57·5	0·0	3·0	19. 47. 48·98	[+1·32]	49·60	48·51	58·91	[1·11]	....	
	44	Polaris S.P. (E&E)	D	..	30·5	22·0	17·0	5·0	51·0	..	..	..	13. 11. 5·43	(+11·67)	42·31	41·73	59·42	59·19	13. 11. 42·11	—84·37
	45	Spica	D	58·0	1·1	3·8	6·6	12·2	18·0	20·9	23·5	26·4	13. 17. 12·25		12·74	12·45	59·71		13. 18. 12·54	— 1·14
	46	η Ursæ Majoris ..	D	54·4	58·7	3·0	7·3	15·9	24·5	28·8	33·2	37·4	13. 41. 15·86		17·12				13. 42. 16·95	+ 0·85
	47	η Boötis	D	6·4	9·5	12·3	15·2	21·0	27·0	29·8	32·8	35·7	13. 47. 21·05		21·83	21·67	59·84		13. 48. 21·66	— 0·53

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·500.

Corrections for passage of Semidiameter, Nos. 5 and 38, +64s·40 : and +64r·00.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

November 4 and 5. The azimuthal error by Polaris S.P. and Polaris, allowing 0s·77 for clock-rate and change of R.A.

5. Correction to R.A. on true Meridian, +0s·01.

23. Very faint.

31. Faint.

10. The time at the 3rd wire has also been used in an Altazimuth transit of α Aquilæ, Face Left.

38. Very faint from cloud. Correction to R.A. on true Meridian, +0s·01.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	s	s	s	s	s	h m s	s
Nov. 4	1	α Draconis.....	D	10·2	17·2	23·1	29·7	42·8	56·0	2·4	9·1	15·6	13. 59. 42·83	+0·37	44·66			59·19	14. 0. 44·50	+ 2·93
	2	Arcturus	D	20·9	23·8	26·8	..	35·5	..	44·4	47·3	50·2	14. 8. 35·53	(+11·67)	36·32	36·15	59·83	[1·11]	14. 9. 36·17	— 0·39
	3	β Boötis	D	48·9	52·3	55·5	58·6	5·1	11·6	14·9	18·0	21·2	14. 25. 5·09	[+1·32]	6·02	5·93	59·91		14. 26. 5·88	— 0·04
Nov. 5	4	⊙ 1 L.....	D	17·8	20·7	23·4	26·5	32·1	37·9	40·9	43·7	46·4	14. 38. 32·13		} 39·89				14. 40. 39·76	
	5	⊙ 2 L.....	D	32·5	35·4	38·2	41·1	46·8	52·6	55·5	58·3	1·0	14. 40. 46·79							
	6	γ Ursæ Minoris..	D	4·5	13·9	22·5	31·8	49·8	8·2	17·2	26·2	35·3	15. 19. 49·83		52·24				15. 20. 52·14	+ 5·53
	7	α Coronæ.....	D	47·3	50·5	53·5	56·6	..	9·0	12·1	15·3	18·4	15. 28. 2·80		3·68	3·62	59·94		15. 29. 3·59	— 0·16
	8	γ Herculis	D	48·4	51·3	54·2	57·1	2·8	8·9	11·8	14·8	17·6	16. 15. 2·96		3·75	3·72	59·97		16. 16. 3·69	— 0·47
	9	η Draconis.....	D	38·4	44·3	50·2	56·0	7·6	19·5	25·4	31·2	37·0	16. 21. 7·67		9·33				16. 22. 9·28	+ 2·45
	10	γ Aquilæ	C	43·0	46·0	48·8	51·5	57·1	2·8	5·7	8·4	11·2	19. 38. 57·13		57·82	57·79	59·97	59·08†	....	
	11	α Aquilæ	C	4·7	7·5	10·2	13·0	18·5	24·3	27·1	29·9	32·8	19. 43. 18·63		19·29	19·30	60·01		....	
	12	α Equulei.....	D	58·0	0·9	3·6	6·3	11·8	17·5	20·3	23·1	25·9	21. 8. 11·91		12·53	12·61	60·08	59·19	21. 9. 12·70	— 2·18
	13	ι Capricorni.....	D	37·5	40·4	43·4	46·2	52·0	57·8	0·9	3·8	6·6	21. 13. 52·04		52·46	52·53	60·07		21. 14. 52·63	— 2·30
	14	θ Ursæ Maj. S.P.	D	36·4	40·6	45·4	49·6	58·8	7·8	12·4	16·8	21·4	21. 22. 58·85		58·64				9. 23. 58·82	— 2·07
	15	β¹ Cephei	D	13·0	21·5	29·4	37·5	53·3	9·9	18·0	26·2	34·1	21. 25. 53·57		55·74				21. 26. 55·92	— 2·25
	16	β² Cephei	D	15·6	23·7	31·8	39·9	55·8	12·2	20·4	28·4	36·6	21. 25. 55·95		58·12				21. 26. 58·30	— 2·25
	17	γ Capricorni	D	30·5	33·5	36·0	39·2	45·0	50·8	53·7	56·5	59·2	21. 31. 44·90		45·32				21. 32. 45·51	— 2·39
	18	11 Cephei	D	16·4	24·9	33·0	41·4	58·0	14·9	23·2	31·5	40·0	21. 38. 58·05		0·29				21. 40. 0·48	— 2·65
	19	☽ 1 L.....	D	35·8	38·8	41·7	44·5	50·2	56·1	59·1	2·0	4·7	21. 48. 50·30		50·77				21. 50. 54·44	
	20	ξ¹ Cephei	D	25·1	31·6	37·9	44·0	56·5	9·3	15·9	21·9	28·0	21. 58. 56·62		58·39				21. 59. 58·60	— 3·01
	21	ξ² Cephei	D	26·2	32·6	38·8	45·0	57·4	10·1	16·8	22·9	28·9	21. 58. 57·56		59·33				21. 59. 59·54	— 3·01
	22	Jupiter 1 L.	D	54·1	..	59·9	..	8·1	..	16·8	..	22·4	22. 1. 8·24		} 10·20				22. 2. 10·41	
	23	Jupiter 2 L.	D	57·1	..	2·8	..	11·3	..	19·8	..	25·4	22. 1. 11·26							
	24	θ Aquarii	D	36·8	39·5	42·3	45·1	50·7	56·2	59·1	1·9	4·6	22. 8. 50·66		51·17	51·35	60·18		22. 9. 51·39	— 2·56
	25	σ Aquarii	D	24·3	27·2	29·8	32·8	38·3	44·0	47·0	49·7	52·5	22. 22. 38 37		38·85	38·96	60·11		22. 23. 39·08	— 2·60
	26	Piazzi 0. 216....	D	17·2	20·0	22·7	25·4	31·0	36·7	39·3	42·2	45·0	0. 45. 31·03		31·65			60·30	0. 46. 31·98	— 3·30
	27	Neptune.....	D	42·9	45·7	48·2	51·2	56·4	2·2	4·9	7·7	10·4	0. 48. 56·59		57·21				0. 49. 57·55	
	28	ϵ Piscium.....	D	51·0	53·8	56·6	59·3	4·8	10·4	13·2	16·0	18·8	0. 55. 4·85		5·50	5·95	60·45		0. 56. 5·84	— 3·39
	29	44 Andromedæ ..	D	30·8	34·5	38·0	41·9	49·2	56·5	0·3	4·0	7·7	1. 1. 49·17		50·25				1. 2. 50·60	— 4·40
	30	87 Piscium.....	D	52·1	55·0	57·8	0·7	6·3	12·1	15·0	17·8	20·7	1. 6. 6·36		7·10				1. 7. 7·45	— 3·59
	31	Polaris	D	..	49·0	37·0	..	16·0	..	..	..	45·5	1. 10. 17·29		41·53	41·54	60·01		1. 11. 41·88	—84·18
	32	τ Andromedæ ...	D	29·4	33·0	36·6	40·2	47·6	54·7	58·2	1·8	5·4	1. 31. 47·39		48·44				1. 32. 48·81	— 4·51
	33	* N.P.D. 55°. 26'..	D	8·6	12·3	15·7	18·9	25·7	32·2	35·5	39·2	42·2	1. 33. 25·55		26·52				1. 34. 26·89	— 4·27
	34	Piazzi I. 170....	D	34·2	37·7	41·0	44·6	51·5	58·6	2·0	5·4	9·0	1. 39. 51·52		52·54				1. 40. 52·92	— 4·43
	35	β Arietis	D	5·7	8·6	11·5	14·6	20·4	26·4	29·3	32·3	35·2	1. 46. 20·42		21·22	21·62	60·40		1. 47. 21·60	— 3·84
	36	Leto.....	D	27·2	29·9	32·6	35·5	41·0	46·6	49·5	52·4	55·4	1. 54. 41·10		41·79				1. 55. 42·18	
	37	α Arietis	D	28·4	31·6	34·5	37·5	43·4	49·6	52·4	55·4	58·5	1. 58. 43·45		44·28	44·79	60·51		1. 59. 44·67	— 3·96
	38	b Andromedæ ...	D	37·7	41·6	45·4	49·2	56·8	..	..	..	..	2. 3. 56·81		57·93				2. 4. 58·33	— 4·86
Nov. 6	39	⊙ 1 L.....	JC	15·1	18·2	21·0	24·0	29·5	35·4	38·4	41·4	44·1	14. 42. 29·64	[+1·15]	} 37·47			60·18	14. 44. 38·37	
	40	⊙ 2 L.....	JC	30·1	33·0	35·9	38·8	44·4	50·4	53·3	56·0	58·8	14. 44. 44·49					[1·17]		
	41	θ Capricorni	E	13·9	17·0	19·8	22·6	28·4	34·4	37·3	40·0	43·0	20. 57. 28·46		28·85	30·23	61·38	60·41†	....	
	42	ζ Cygni	E	0·4	3·6	6·7	9·8	16·2	22·7	25·8	29·1	32·1	21. 6. 16·24		17·14	18·64	61·50		....	
	43	η Piscis Australis	JC	56·6	59·9	3·0	5·9	12·4	18·7	21·8	25·0	28·2	21. 52. 12·36		12·63			60·18	21. 53. 13·88	— 2·48
	44	α Aquarii.....	JC	43·8	46·7	49·4	52·3	57·8	3·4	6·2	8·8	11·6	21. 57. 57·75		58·31	59·54	61·23		21. 58. 59·56	— 2·47
	45	Jupiter 1 L.....	JC	..	5·6	..	11·4	17·0	22·8	..	28·4	..	22. 1. 17·00		} 18·90				22. 2. 20·15	
	46	Jupiter 2 L.....	JC	..	8·5	..	14·3	19·9	25·6	..	31·4	..	22. 1. 19·90							
	47	θ Aquarii	JC	35·6	38·4	41·2	43·9	49·4	55·1	57·9	0·7	3·6	22. 8. 49·50		50·00	51·33	61·33		22. 9. 51·26	— 2·54

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31''·500.
Correction for passage of Semidiameter, No. 19, +63''·45.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
November 6. The azimuthal error by tabular places of ϵ Piscium and Polaris, allowing 0''·01 for clock-rate.

7, 39, 40. Cloudy.

19. Tremulous. Correction to R.A. on true Meridian, +0''·02.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
																		3.61	1. 45. 23·80	— 4·58
Nov. 8	1	55 Andromedæ ..	E	1·0	4·8	8·4	12·0	19·3	26·4	30·0	33·6	37·4	1. 45. 19·17	+0·37	20·13			[0·87]	1. 53. 7·81	
	2	Leto	E	..	..	..	..	3·2	9·4	..	..	17·9	1. 53. 3·60	(+10·88)	4·13				1. 59. 11·54	— 3·94
	3	κ Arietis	E	52·4	55·4	58·2	1·2	7·0	13·2	16·2	19·2	22·1	1. 59. 7·18	[−1·23]	7·86				2. 4. 58·27	— 4·88
	4	b Andromedæ ...	E	34·3	38·4	42·1	46·0	53·5	1·3	5·2	8·9	12·8	2. 4. 53·57		54·59				2. 6. 3·25	— 3·43
	5	66 Ceti.....	E	..	..	51·0	53·6	..	4·8	..	10·2	13·1	2. 5. 59·19		59·57				2. 21. 8·98	— 3·62
	6	ξ^2 Ceti	E	50·8	53·6	56·3	59·1	4·9	10·4	13·3	16·0	18·9	2. 21. 4·78		5·29	9·00	3·71		2. 48. 25·03	
	7	Nemausa	E	..	..	..	..	..	26·3	29·2	..	35·0	2. 48. 20·89		21·34				2. 55. 23·28	— 3·57
	8	α Ceti.....	E	5·3	8·0	10·8	13·6	19·1	24·6	27·5	30·2	33·0	2. 55. 19·09		19·56	23·29	3·73		3. 32. 53·90	— 4·15
	9	11 Tauri	E	34·2	37·4	40·4	43·4	49·4	55·7	58·6	1·5	4·7	3. 32. 49·44		50·16	54·08	3·92		3. 40. 13·83	
	10	Eurynome	E	..	58·2	1·1	..	..	15·1	18·1	21·0	23·8	3. 40. 9·49		10·09					
																		5·12	....	
	10								21·7	24·7	27·6	30·6	1. 47. 15·79		16·44	21·63	5·19	[0·92]	2. 10. 32·42	
															19·42					
Nov. 10	11	β Arietis	JC	..	..	..	..	..	..	..	..	..	2. 9. 18·91							
	12	☽ 1 L.....	JC	..	7·4	10·4	..	..	..	..	..	..						5·15	15. 4. 43·85	
								29·9	35·7	38·8	41·6	44·5	15. 3. 29·93	+0·61	38·17			[0·84]		
Nov. 11	13	⊙ 1 L.....	C	..	..	..	..	46·0	51·8	54·8	57·7	0·6	15. 5. 46·00	(+10·76)					21. 30. 42·34	— 2·26
	14	⊙ 2 L.....	C	31·4	34·5	37·3	40·2	36·0	41·8	44·6	47·4	50·2	21. 30. 36·13	[−1·68]	36·44	42·40	5·96			
	15	ξ Aquarii.....	C	22·2	25·1	27·8	30·4	7·0	12·4	17·9	20·7	23·4	23. 10. 12·43		12·87	19·06	6·19	5·36†	....	
	16	γ Piscium.....	S	58·6	1·5	4·2	7·0	3·2	8·8	11·6	14·2	17·0	23. 20. 3·14		3·55	19·70	6·15		....	
	17	κ Piscium.....	S	49·4	52·0	54·7	57·6	3·2	8·8	11·6	14·2	17·0	23. 33. 3·08		3·54	9·56	6·02	5·15	23. 33. 9·52	— 2·98
	18	ι Piscium.....	C	49·3	52·0	54·7	57·6	3·0	8·8	11·4	14·2	17·0	23. 33. 3·08		56·13				23. 34. 2·11	— 7·33
	19	γ Cephei	C	..	..	..	..	52·8	17·5	29·5	41·7	54·0	23. 33. 52·83		24·39				23. 48. 30·37	— 6·79
	20	Groombridge 4163	C	32·5	42·4	52·2	2·0	22·0	..	..	..	..	23. 48. 21·68		12·13	18·13	6·00	5·99	0. 23. 18·13	— 3·08
	21	12 Ceti.....	C	57·9	0·8	3·4	6·4	11·8	17·4	20·1	22·8	25·6	0. 23. 11·77		20·06				0. 24. 26·06	— 3·76
	22	B. F. 34.....	C	..	..	..	12·6	19·3	26·0	29·1	32·5	35·6	0. 24. 19·23		57·81				0. 37. 3·82	— 8·40
	23	21 Cassiopeiæ ...	C	4·2	14·2	24·5	35·0	54·8	..	..	..	..	0. 36. 55·02		25·99				0. 46. 32·01	— 3·27
	24	Piazzi 0. 216	C	11·8	14·4	17·3	20·0	25·6	31·1	33·9	36·6	39·4	0. 46. 25·54		22·12				0. 49. 28·14	
	25	Neptune.....	C	..	10·6	13·4	16·0	21·7	27·4	30·1	32·8	..	0. 49. 21·67		33·54	39·58	6·04		....	
	26	Polaris ....(E&E)	C	35·5	34·0	26·5	20·5	5·0	..	..	..	..	1. 11. 5·69		3·01	9·01	6·00		2. 21. 9·08	— 3·63
	27	ξ^2 Ceti	C	48·4	51·4	54·1	57·0	2·5	8·2	11·0	13·7	16·5	2. 21. 2·51		58·18				2. 24. 4·25	— 4·53
	28	14 Trianguli	C	40·3	43·9	47·2	50·4	57·4	4·2	7·5	10·9	14·4	2. 23. 57·31		41·42				2. 27. 47·50	— 4·47
	29	15 Trianguli	C	23·8	27·4	30·6	34·0	40·4	47·2	50·8	53·9	57·3	2. 27. 40·56		50·55				2. 33. 56·63	— 4·76
	30	12 Persei	C	31·8	35·4	38·9	42·4	49·4	56·9	0·4	4·0	7·6	2. 33. 49·60		22·12	28·19	6·07		2. 36. 28·20	— 3·54
	31	γ^2 Ceti	C	7·9	10·6	13·3	16·2	21·7	27·3	30·1	32·9	35·4	2. 36. 21·68		42·96				2. 37. 49·04	— 3·72
	32	μ Ceti.....	C	28·4	31·2	33·9	36·8	42·6	48·1	51·0	53·7	56·6	2. 37. 42·45		10·44				2. 42. 16·52	— 4·70
	33	16 Persei	C	52·1	55·7	59·1	2·4	9·6	16·7	20·0	23·6	26·9	2. 42. 9·52		18·13				2. 48. 24·22	— 3·93
	34	ρ^2 Arietis	C	3·0	6·0	8·8	11·8	17·6	23·3	26·2	29·2	32·0	2. 48. 17·51		36·58				3. 8. 52·28	
	35	☽ 1 L.....	C	21·4	24·4	27·3	30·2	36·0	42·0	44·9	47·8	50·6	3. 7. 36·03		55·53				3. 8. 52·07	
	36	☽ 2 L.....	C	40·4	43·4	46·2	49·4	54·9	0·8	3·8	6·7	9·5	3. 9. 54·98		4·24				3. 15. 10·34	— 4·03
	37	τ^2 Arietis.....	C	49·0	51·8	54·8	57·6	3·5	9·6	12·4	15·5	18·4	3. 15. 3·59		29·75	35·83	6·08		3. 23. 35·86	— 3·82
	38	f Tauri.....	C	15·1	17·9	20·7	23·4	29·4	34·9	37·8	40·5	43·4	3. 23. 29·20		7·06				3. 29. 13·17	— 4·11
	39	9 Tauri	C	..	..	..	..	..	12·4	15·4	18·5	21·4	3. 29. 6·38							
																		6·84		
	40	Jupiter 1 L.	HC	..	..	..	..	40·8	46·5	..	52·2	..	22. 3. 40·79	(+11·04)	42·42			[0·66]	22. 3. 49·87	
Nov. 13	41	Jupiter 2 L.	HC	..	..	..	..	43·6	49·3	..	54·9	..	22. 3. 43·56	[−2·14]					22. 24. 17·32	— 3·00
	42	δ Cephei.....	HC	..	..	..	..	..	18·8	24·0	29·1	34·4	22. 24. 8·36		9·86				22. 28. 33·84	— 2·55
	43	η Aquarii.....	HC	12·1	15·0	17·7	..	..	31·6	34·4	37·1	39·8	22. 28. 25·99		26·38	33·78	7·40		22. 43. 38·00	— 2·78
	44	μ Pegasi.....	HC	14·7	17·8	20·7	23·9	29·8	35·9	39·0	..	..	22. 43. 29·83		30·53	37·93	7·40			
	45	2 Ceti.....	C	36·1	39·2	41·9	44·8	50·6	56·7	59·4	2·2	5·1	23. 56. 50·64		50·81	58·28	7·47	6·82†	....	
	46	α Andromedæ ...	C	10·6	13·9	16·7	20·0	26·2	32·6	35·7	38·9	42·0	0. 1. 26·26		27·02	34·51	7·49	7·48†	....	

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^r{\cdot}500$.
Corrections for passage of Semidiameter, Nos. 12, 35, and 36, $+67^s{\cdot}78$: $+69^s{\cdot}58$: and $-69^s{\cdot}58$.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
November 11. The azimuthal error by tabular places of 12 Ceti and Polaris, allowing $0^s{\cdot}06$ for clock-rate.
November 13 to 15. The azimuthal error used is that determined on November 13 by tabular places of Polaris and η Piscium.

2. Very faint; an unsatisfactory observation.
24, 40, 41. Very faint.
35. Correction for defect of illumination insensible.
11. Very cloudy.
25. Very faint; cloudy.
39. Extremely faint from thick fog.
12. Extremely cloudy. Correction to R.A. on true Meridian, $+0^s{\cdot}02$.
35, 36. Correction to R.A. on true Meridian, $+0^s{\cdot}02$.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Nov. 13	1	Bradley 6	HC	..	..	6·6	18·9	41·4	4·9	16·8	..	..	0. 8. 41·59	+0·61	44·86			7·50	0. 8. 52·36	— 8·22
	2	ρ Andromedæ	HC	45·2	49·0	52·3	55·6	2·8	9·8	13·2	16·6	20·1	0. 14. 2·70	(+11·04)	3·62			[0·66]	0. 14. 11·13	— 3·80
	3	28 Andromedæ	HC	46·0	49·4	52·4	..	1·9	..	11·5	14·7	17·6	0. 23. 1·90	[−2·14]	2·68				0. 23. 10·19	— 3·63
	4	α Cassiopeiæ	HC	..	..	40·1	45·0	54·6	4·6	9·4	..	..	0. 32. 54·68		56·10				0. 33. 3·62	— 4·96
	5	21 Cassiopeiæ	HC	..	..	22·8	32·9	52·8	14·1	24·0	..	..	0. 36. 53·21		56·10				0. 37. 3·62	— 8·33
	6	Piazzi 0. 216	HC	10·0	12·8	15·6	18·4	23·7	29·4	32·2	34·9	37·7	0. 46. 23·83		24·26				0. 46. 31·78	— 3·26
	7	Neptune	HC	56·7	59·5	2·4	5·0	10·7	16·2	19·1	21·8	24·5	0. 49. 10·63		11·06				0. 49. 18·58	
	8	ε Piscium	HC	43·8	46·8	49·4	52·2	57·8	3·4	6·2	9·0	11·9	0. 55. 57·80		58·28	5·92	7·64		0. 56. 5·81	— 3·36
	9	Bradley 117	HC	41·4	56·9	11·2	..	..	..	..	..	..	1. 0. 54·17		58·18				1. 1. 5·71	—11·92
	10	31 Cassiopeiæ	HC	..	..	17·1	24·4	39·2	54·2	1·4	..	..	1. 1. 39·18		41·33				1. 1. 48·86	— 7·08
	11	36 Ceti	HC	47·4	50·2	52·9	55·8	1·4	7·0	9·8	12·5	15·3	1. 6. 1·34		1·65				1. 6. 9·18	— 3·19
	12	Polaris (E&E)	HC	..	..	..	..	2·5	51·0	46·0	39·0	31·0	1. 11. 2·24		31·37	39·07	7·70		....	
	13	η Piscium	HC	3·3	6·2	9·1	11·9	17·6	23·4	26·2	29·0	32·0	1. 24. 17·60		18·17	25·78	7·61		1. 24. 25·71	— 3·62
	14	τ Andromedæ	HC	22·4	26·0	29·6	33·2	40·3	47·6	51·2	55·0	58·6	1. 32. 40·40		41·36				1. 32. 48·90	— 4·50
	15	Piazzi I. 170	HC	27·1	30·8	34·0	37·6	44·5	51·5	55·0	58·6	2·0	1. 40. 44·53		45·45				1. 40. 53·00	— 4·43
	16	1 Arietis (1st Star)	HC	28·5	31·7	34·7	37·6	..	..	..	..	..	1. 42. 43·50		44·16				1. 42. 51·71	— 3·88
	17	1 Arietis (2d Star)	HC	..	..	..	..	..	49·6	52·7	55·6	58·6	1. 42. 43·66		44·32				1. 42. 51·87	— 3·88
	18	β Arietis	HC	58·7	1·9	4·9	7·7	13·5	19·3	22·4	25·3	28·3	1. 47. 13·53		14·17	21·63	7·46		1. 47. 21·72	— 3·85
	19	ε Trianguli	HC	51·6	55·0	58·3	1·6	8·0	14·8	18·0	21·4	24·6	1. 55. 8·10		8·94				1. 55. 16·49	— 4·30
	20	11 Arietis	HC	57·7	0·8	3·8	6·9	13·1	19·2	22·2	25·1	28·4	1. 59. 12·99		13·70				1. 59. 21·25	— 4·03
	21	58 Andromedæ	HC	7·0	10·6	14·0	17·4	24·3	..	34·8	38·2	..	2. 0. 24·34		25·26				2. 0. 32·81	— 4·53
	22	66 Ceti (1st Star)	HC	40·7	43·6	46·2	..	..	0·1	..	5·7	..	2. 5. 54·55		54·90				2. 6. 2·46	— 3·44
	23	66 Ceti (2nd Star)	HC	41·6	44·4	..	49·9	55·3	..	3·9	..	..	2. 5. 55·42		55·77				2. 6. 3·33	— 3·44
	24	Bradley 325	HC	42·0	46·3	50·0	54·2	2·2	10·2	14·4	18·4	22·3	2. 12. 2·18		3·30				2. 12. 10·86	— 5·14
	25	Lalande 4458	HC	7·0	10·2	13·3	16·6	22·6	29·0	32·2	35·3	38·4	2. 17. 22·71		22·76				2. 17. 30·32	— 3·10
	26	15 Trianguli	HC	22·4	25·9	29·1	32·4	..	..	..	..	..	2. 27. 39·11		39·96				2. 27. 47·53	— 4·49
	27	Piazzi II. 117	HC	..	..	..	..	42·7	49·3	52·7	56·0	59·1	2. 27. 42·57		43·42				2. 27. 50·99	— 4·48
	28	12 Persei	HC	30·1	34·0	..	41·0	48·2	55·2	..	2·6	6·1	2. 33. 48·13		49·08				2. 33. 56·65	— 4·78
	29	16 Persei	HC	50·4	54·1	57·6	1·1	8·0	15·1	18·6	22·2	25·5	2. 42. 8·02		8·94				2. 42. 16·51	— 4·70
	30	21 Persei	HC	53·2	56·5	59·8	3·0	9·3	16·0	19·2	22·2	25·6	2. 49. 9·39		10·20				2. 49. 17·78	— 4·42
	31	δ Arietis	HC	42·7	45·8	48·7	51·6	57·4	3·4	6·2	9·3	12·1	3. 3. 57·43		58·06	5·66	7·60		3. 4. 5·64	— 4·01
	32	Piazzi III. 5	HC	45·4	49·4	53·0	56·8	4·2	11·7	15·5	19·1	22·8	3. 6. 4·17		5·18				3. 6. 12·77	— 5·01
	33	τ¹ Arietis	HC	14·1	17·2	20·2	23·2	29·0	34·8	37·8	40·7	43·8	3. 13. 28·94		29·59	37·18	7·59		3. 13. 37·18	— 4·06
	34	o Persei	HC	48·9	53·1	57·1	1·2	9·4	17·4	21·8	25·6	29·8	3. 21. 9·32		10·48				3. 21. 18·07	— 5·42
	35	Bradley 483	HC	21·9	26·0	30·0	34·1	42·1	50·4	54·6	58·6	2·7	3. 22. 42·23		43·39				3. 22. 50·98	— 5·43
	36	11 Tauri	HC	30·5	33·6	36·7	39·7	45·9	51·9	55·0	58·0	1·0	3. 32. 45·78		46·49	54·14	7·65		3. 32. 54·09	— 4·21
	37	o Persei	HC	36·9	40·1	43·3	46·8	53·3	0·0	3·4	6·6	9·8	3. 33. 53·33		54·19				3. 34. 1·79	— 4·57
	38	η Tauri	HC	15·6	18·8	21·8	24·8	30·8	36·9	40·0	43·0	46·0	3. 39. 30·83		31·52	39·11	7·59		3. 39. 39·12	— 4·17
	39	n Persei	HC	48·2	51·6	55·0	58·1	4·8	11·4	14·7	17·8	21·2	3. 41. 4·72		5·56				3. 41. 13·16	— 4·54
	40	32 Tauri	HC	41·5	44·7	47·7	50·6	56·6	2·5	5·4	8·4	11·6	3. 48. 56·52		57·19				3. 49. 4·79	— 4·12
	41	A² Tauri	HC	8·9	12·1	15·0	17·8	23·9	..	..	..	..	3. 57. 23·85		24·51				3. 57. 32·12	— 4·11
	42	Piazzi III. 237	HC	..	..	..	..	..	31·0	33·8	36·9	39·8	3. 57. 24·91		25·57				3. 57. 33·18	— 4·11
	43	p Tauri	HC	..	27·7	30·9	33·8	40·1	46·2	49·2	52·3	..	4. 2. 39·99		40·72				4. 2. 48·33	— 4·26
	44	D 2 L.	HC	26·4	29·6	32·6	35·5	41·4	47·4	50·4	..	..	5. 14. 41·43		42·04				5. 13. 37·38	
Nov. 14	45	ε Tauri	E	31·5	34·6	37·4	40·3	46·2	52·0	55·1	57·8	0·6	4. 20. 46·13	(+10·14)	46·70	55·16	8·46	8·33†	....	
	46	Aldebaran	E	57·8	1·0	3·8	6·6	12·4	18·2	21·3	23·9	26·8	4. 28. 12·39		12·91	21·39	8·48	[0·74]	....	
	47	η Geminorum	JC	..	34·1	37·0	..	46·0	..	..	..	0·9	6. 6. 45·97		46·59	54·77	8·18		....	
	48	μ Geminorum	JC	34·6	37·8	40·8	43·7	49·8	55·8	58·8	1·7	4·8	6. 14. 49·72		50·34	58·59	8·25		....	

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Correction for passage of Semidiameter, No. 44, −72s·33.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.

44. The limb scarcely visible; cloudy. Correction to R.A. on true Meridian, +0s·03.

46. Very faint.

47. Very cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Nov.21	1	Piazzi 0. 216	D	4·4	7·4	10·0	12·8	18·4	23·9	26·7	29·4	32·1	0. 46. 18·31	+0·56	18·73			13·10	0. 46. 31·85	— 3·21
																		[0·59]	0. 48. 45·08	
	2	Neptune	D	17·7	20·5	23·2	26·0	31·5	37·1	40·0	42·7	45·4	0. 48. 31·54	(+11·45)	31·96				0. 56. 5·82	— 3·31
														[−2·76]	52·70	5·87	13·17		1. 3. 46·25	— 3·27
	3	ε Piscium	D	38·3	41·2	43·9	46·7	52·2	57·8	0·6	3·4	6·2	0. 55. 52·23		33·12				1. 11. 36·60	—77·76
	4	33 Ceti	D	18·9	21·8	24·4	27·2	32·8	38·2	41·1	43·8	46·5	1. 3. 32·72		23·47	35·12	11·65		1. 12. 21·19	—11·15
	5	Polaris ....(E&E)	D	..	..	..	6·0	52·5	43·0	36·5	28·5	21·0	1. 10. 52·48		8·06				2. 55. 23·34	— 3·64
	6	Bradley 166	D	..	..	..	37·8	4·0	31·0	..	..	..	1. 12. 4·14		10·17	23·36	13·19		3. 6. 12·90	— 5·08
	7	α Ceti	D	56·0	58·6	1·5	4·2	9·8	15·4	18·1	20·9	23·6	2. 55. 9·75		59·72				3. 9. 13·94	— 4·88
	8	Piazzi III. 5	D	40·0	44·0	47·6	51·2	58·6	6·3	10·0	13·6	17·2	3. 5. 58·68		0·76				3. 10. 29·78	— 4·64
	9	Groombridge 639.	D	42·2	45·7	49·2	52·8	59·8	6·9	10·3	14·0	17·6	3. 8. 59·79		16·60				3. 17. 43·28	— 3·80
	10	Piazzi III. 23 ...	D	..	2·5	5·8	..	15·8	22·4	25·8	29·1	..	3. 10. 15·74		30·10	43·33	13·23		3. 23. 35·81	— 3·90
	11	o Tauri	D	15·8	18·5	21·2	24·1	29·6	35·2	38·0	40·9	43·5	3. 17. 29·61		22·63	35·91	13·28		1. 11. 36·35	—77·52
	12	f Tauri	D	8·0	10·8	13·6	16·6	22·1	27·7	30·6	33·4	36·3	3. 23. 22·09		22·92	34·88	11·96			
	13	Polaris S.P. (E&E)	JC	..	..	..	..	..	39·5	33·0	25·5	23·0	13. 11. 53·25							
Nov.23	14	Jupiter 1 L.....	C	..	..	34·3	..	42·6	..	51·1	..	56·7	22. 6. 42·60	[−1·68]	44·30			13·50	22. 6. 58·36	
	15	Jupiter 2 L.	C	..	..	37·0	..	45·4	..	54·0	..	59·6	22. 6. 45·43					[0·61]		
	16	ζ Pegasi	C	23·6	26·6	29·2	32·0	37·6	43·3	46·1	48·9	51·6	22. 34. 37·62		38·18	52·20	14·02		22. 34. 52·25	— 2·49
	17	Fomalhaut	C	50·0	53·3	56·4	59·6	6·0	12·5	15·7	18·9	22·0	22. 50. 6·01		6·05	20·12	14·07		22. 50. 20·13	— 2·43
	18	α Ursæ Maj. S.P.	C	47·7	53·8	59·5	5·6	17·7	..	..	..	..	22. 55. 17·68		16·70				10. 55. 30·78	— 1·20
	19	Var. (R) Pegasi .	C	32·3	35·3	38·0	40·7	..	..	..	..	..	22. 59. 46·37		46·91				23. 0. 0·99	— 2·65
	20	γ Piscium.....	C	50·5	53·4	56·1	58·7	4·4	10·0	12·8	15·4	18·2	23. 10. 4·36		4·83	18·92	14·09		23. 10. 18·92	— 2·71
	21	γ Pegasi	C	57·4	0·4	3·2	6·0	11·7	17·5	20·4	23·1	26·0	0. 6. 11·72		12·33	26·50	14·17	14·11	0. 6. 26·44	— 3·14
	22	12 Ceti.....	C	49·7	52·6	55·3	58·0	3·5	9·1	12·0	14·7	17·4	0. 23. 3·56		3·94	18·04	14·10		0. 23. 18·06	— 2·99
	23	β Can. Ven. S.P..	C	53·4	57·1	0·9	4·5	12·1	19·5	23·3	27·0	30·8	0. 27. 12·11		11·85				12. 27. 25·97	— 0·62
	24	21 Cassiopeiæ ...	C	54·8	5·3	15·2	25·3	45·6	..	..	..	..	0. 36. 45·72		48·63				0. 37. 2·76	— 7·88
	25	Piazzi 0. 216	C	..	6·2	8·9	11·8	17·2	22·7	25·4	28·4	..	0. 46. 17·20		17·68				0. 46. 31·81	— 3·19
	26	Neptune	C	9·1	12·2	14·7	17·4	23·0	28·6	31·4	34·1	36·9	0. 48. 23·02		23·50				0. 48. 37·63	
	27	β Andromedæ ...	C	49·6	53·1	56·4	59·7	6·5	13·4	16·6	20·0	23·4	1. 2. 6·48		7·40	21·58	14·18		1. 2. 21·54	— 4·02
	28	33 Ceti	C	17·8	20·7	23·4	26·2	31·6	37·3	40·0	42·8	45·5	1. 3. 31·67		32·13				1. 3. 46·27	— 3·25
	29	Polaris ....(E&E)	C	..	..	..	5·0	49·5	41·0	..	28·0	20·0	1. 10. 50·88		20·10	34·20	14·10		....	
Nov.26	30	Polaris S.P. (E&E)	D	18·0	9·0	1·0	54·0	46·0	..	..	..	..	13. 11. 45·52	+0·68	17·18	32·65	15·47	16·19	1. 11. 33·74	—75·29
	31	Spica	D	42·0	45·0	47·7	50·5	56·0	1·7	4·5	7·4	10·0	13. 17. 56·06	(+11·22)	56·38	12·90	16·52	[0·68]	13. 18. 12·95	— 1·59
	32	η Boötis	D	50·1	53·2	56·0	58·9	4·8	10·6	13·6	16·4	19·5	13. 48. 4·76	[−1·71]	5·43	22·04	16·61		13. 48. 22·01	— 0·90
	33	Arcturus	D	4·5	7·5	10·4	13·4	19·2	25·2	28·0	31·0	33·9	14. 9. 19·20		19·88	36·47	16·59		14. 9. 36·47	— 0·71
	34	ε Boötis	D	32·7	35·9	39·2	42·4	48·7	55·2	58·6	1·6	4·9	14. 25. 48·77		49·59	6·22	16·63		14. 26. 6·19	— 0·33
	35	2 Boötis	D	38·2	41·4	44·4	47·5	53·6	0·1	3·2	6·2	9·3	14. 38. 53·74		54·52	11·12	16·60		14. 39. 11·12	— 0·40
	36	β Ursæ Minoris..	D	48·9	59·8	10·0	20·5	41·3	2·5	12·8	23·4	33·6	14. 50. 41·31		44·29				14. 51. 0·90	+ 6·46
	37	α Coronæ	D	30·8	34·0	37·0	40·1	46·3	52·5	55·8	58·7	2·0	15. 28. 46·32		47·09	3·75	16·66		15. 29. 3·72	— 0·29
	38	α Serpentis	D	12·9	15·8	18·5	21·3	26·8	32·5	35·4	38·0	40·8	15. 37. 26·86		27·37	43·99	16·62		15. 37. 44·00	— 0·90
Nov.27	39	⊙ 1 L.	D	42·3	45·4	48·4	51·3	57·3	3·3	6·3	9·2	12·1	16. 9. 57·26		7·29				16. 11. 23·94	
	40	⊙ 2 L.	D	2·2	5·2	8·1	11·0	16·9	23·0	25·9	28·8	31·9	16. 12. 16·97		8·50				17. 19. 25·58	
	41	Venus 1 L.....	D	53·2	56·4	59·3	2·3	8·3	14·4	17·6	20·5	23·5	17. 19. 8·36		29·80	46·45	16·65		17. 28. 46·48	— 0·78
	42	α Ophiuchi.....	D	15·0	18·0	20·8	23·6	29·2	34·9	37·7	40·6	43·4	17. 28. 29·21		38·48	55·11	16·63		17. 36. 55·17	— 0·98
	43	β Ophiuchi	D	24·1	27·1	29·7	32·4	38·0	43·6	46·4	49·1	51·8	17. 36. 37·99		58·90	15·59	16·69		17. 41. 15·59	— 0·33
	44	μ Herculis	D	42·5	45·7	48·7	51·9	58·2	4·4	7·6	10·7	13·7	17. 40. 58·12		13·45				17. 53. 30·15	+ 0·96
	45	γ Draconis.....	D	49·9	54·6	58·8	3·3	12·1	21·1	25·5	30·0	34·5	17. 53. 12·17		38·32	55·07	16·75		20. 48. 55·10	— 1·54
	46	32 Vulpeculæ ...	D	22·0	25·2	28·2	31·4	37·5	43·8	47·0	50·0	53·1	20. 48. 37·54							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S. P.

Reading of Transit-Micrometer, $31^r{\cdot}500$.

Correction for passage of Semidiameter, No. 41, $+0^s{\cdot}40$.

November 23. The azimuthal error by tabular places of 12 Ceti and Polaris, allowing $0^s{\cdot}02$ for clock-rate.

November 26 and 27. The azimuthal error by Polaris S.P. and Polaris, allowing $0^s{\cdot}53$ for clock-rate and change of R.A.

19. Of the 10th magnitude.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Nov. 27	1	76 Draconis	D	..	..	..	56·2	35·9	16·6	..	..	..	20. 51. 36·02	+ 0·68	41·47			16·19	20. 51. 58·25	+ 3·96
	2	61 Cyg. (1st Star)	D	22·8	26·4	29·8	33·4	40·3	47·3	51·0	54·4	57·8	21. 0. 40·32	(+11·22)	41·28			[0·68]	21. 0. 58·07	— 1·80
	3	61 Cyg. (2d Star)	D	24·2	27·9	31·4	34·8	41·8	49·0	52·4	55·8	59·4	21. 0. 41·82	[−1·71]	42·78				21. 0. 59·57	— 1·80
	4	ζ Cygni	D	44·9	48·1	51·3	54·4	0·7	7·1	10·3	13·4	16·6	21. 7. 0·73		1·54	18·26	16·72		21. 7. 18·33	— 1·68
	5	α Equulei	D	41·4	44·1	46·9	49·6	55·1	0·8	3·5	6·2	9·0	21. 8. 55·15		55·64	12·31	16·67		21. 9. 12·43	— 1·88
	6	α Cephei	D	..	..	..	..	..	19·0	24·8	30·5	36·4	21. 15. 6·97		8·60				21. 15. 25·39	— 1·08
	7	β^1 Cephei	D	55·0	3·4	11·4	19·4	35·4	51·4	59·8	7·9	15·8	21. 26. 35·41		37·74				21. 26. 54·54	— 0·90
	8	β^2 Cephei	D	57·4	5·8	13·7	21·8	37·8	54·0	2·0	10·4	18·2	21. 26. 37·81		40·14				21. 26. 56·94	— 0·90
	9	16 Pegasi	D	..	..	..	..	..	..	54·6	57·6	0·7	21. 46. 45·36		46·10	2·78	16·68		21. 47. 2·91	— 2·07
	10	Jupiter 1 L.	D	0·0	..	5·8	..	14·2	..	22·8	..	28·3	22. 8. 14·20		} 15·88				22. 8. 32·70	
	11	Jupiter 2 L.	D	2·8	..	8·6	..	17·0	..	25·4	..	31·2	22. 8. 16·98							
	12	ι Piscium	D	34·4	37·3	40·1	42·8	48·3	53·9	56·7	59·4	2·2	0. 55. 48·31		48·82	5·83	17·01	16·87	0. 56. 5·72	— 3·27
	13	32 Cassiopeiæ	D	19·0	25·6	32·0	38·2	50·8	3·8	10·2	16·3	22·8	1. 2. 50·90		52·76				1. 3. 9·66	— 6·04
	14	Polaris (E&E)	D	..	..	7·5	2·0	47·0	37·0	..	23·0	..	1. 10. 47·56		16·65	32·40	15·75		1. 11. 33·55	−75·04
	15	47 Andromedæ	D	33·7	37·2	40·6	44·0	50·9	58·0	1·5	5·1	8·4	1. 15. 51·01		51·94				1. 16. 8·85	— 4·17
	16	A Cassiopeiæ	D	31·4	39·4	47·1	55·1	11·2	26·9	34·8	42·9	50·7	1. 21. 10·97		13·27				1. 21. 30·18	— 7·50
	17	ω Cassiopeiæ	D	44·1	51·6	58·6	5·8	19·8	34·3	41·7	48·9	56·0	1. 32. 20·00		21·92				1. 32. 38·83	— 7·16
	18	ο Piscium	D	54·4	57·4	0·2	3·0	8·4	14·0	16·8	19·8	22·4	1. 38. 8·46		8·99				1. 38. 25·91	— 3·51
	19	Bradley 253	D	32·2	35·8	39·3	42·7	49·4	56·4	..	..	..	1. 47. 49·49		50·42				1. 48. 7·34	— 4·39
	20	56 Andromedæ	D	..	..	..	..	2·4	9·4	12·8	16·2	19·7	1. 48. 2·42		3·35				1. 48. 20·27	— 4·40
	21	50 Cassiopeiæ	D	..	..	31·1	40·0	57·5	15·6	24·2	..	..	1. 51. 57·58		0·14				1. 52. 17·06	— 8·75
	22	γ^1 Andromedæ	D	12·9	16·9	20·5	24·0	31·6	38·9	42·7	46·4	50·1	1. 55. 31·52		32·55				1. 55. 49·48	— 4·68
	23	γ^2 Andromedæ	D	13·8	17·6	21·3	25·1	32·4	39·8	43·6	47·3	51·0	1. 55. 32·40		33·43				1. 55. 50·36	— 4·68
	24	Bradley 284	D	..	..	..	51·0	57·1	3·2	6·3	9·3	12·2	1. 58. 57·04		57·78				1. 59. 14·71	— 4·07
	25	b Andromedæ	D	21·2	25·2	29·0	32·8	40·4	48·0	51·8	55·6	59·4	2. 4. 40·34		41·41				2. 4. 58·34	— 4·86
	26	8 Persei	D	58·5	3·6	8·7	14·0	24·0	34·4	39·4	44·5	49·7	2. 8. 24·03		25·53				2. 8. 42·46	— 6·05
	27	64 Andromedæ	D	1·5	5·8	..	14·2	22·7	31·4	..	39·8	44·0	2. 15. 22·72		23·95				2. 15. 40·88	— 5·35
	28	γ^2 Ceti	D	57·0	0·0	2·5	5·4	10·8	16·4	19·2	22·0	24·7	2. 36. 10·86		11·31	28·24	16·93		2. 36. 28·25	— 3·59
	29	ο Tauri	D	11·8	14·7	17·4	20·2	25·7	31·2	34·2	36·9	39·8	3. 17. 25·74		26·27	43·36	17·09		3. 17. 43·23	— 3·83
	30	Eurynome	D	13·7	16·6	19·5	22·5	27·6	33·5	36·5	39·4	42·4	3. 23. 27·93		28·52				3. 23. 45·48	
	31	η Tauri	D	6·4	9·5	12·4	15·4	21·4	27·5	30·4	33·5	36·6	3. 39. 21·43		22·15	39·25	17·10		3. 39. 39·12	— 4·31
	32	ε Virginis	P	2·6	5·6	8·4	11·2	16·9	22·5	25·4	28·2	31·2	12. 55. 16·86	(+11·56)	17·30	34·71	17·32	17·05	12. 55. 34·71	— 1·35
	33	Polaris S.P. (E&E)	P	17·5	10·0	2·0	56·0	45·0	..	..	..	..	1. 11. 46·04	[−2·93]	14·85	32·15	17·30	[0·50]	....	
	34	Spica	P	41·3	44·2	47·0	49·8	55·4	0·9	3·8	6·6	9·5	13. 17. 55·36		55·62	12·92	17·30		13. 18. 12·95	— 1·61
	35	η Ursæ Majoris	P	37·3	41·9	46·0	50·3	58·9	7·6	11·8	16·2	20·4	13. 41. 58·88		0·15				13. 42. 17·49	+ 0·38
	36	η Boötis	P	49·5	52·4	55·3	58·2	4·0	9·9	13·0	15·9	18·8	13. 48. 4·08		4·72	22·06	17·34		13. 48. 22·06	— 0·92
	37	α Draconis	P	..	59·5	6·2	12·8	25·6	38·7	45·3	51·9	..	14. 0. 25·66		27·68				14. 0. 45·02	+ 2·43
	38	Arcturus	P	3·6	6·6	9·6	12·6	18·5	24·4	27·4	30·3	33·3	14. 9. 18·44		19·09	36·49	17·40		14. 9. 36·44	— 0·73
	39	ε Boötis	P	37·4	40·8	43·8	47·0	..	59·4	2·4	5·6	8·6	14. 38. 53·10		53·87	11·14	17·27		14. 39. 11·22	— 0·42
	40	β Ursæ Minoris	P	..	..	9·1	19·5	40·5	..	12·1	..	..	14. 50. 40·44		43·62				14. 51. 0·98	+ 6·44
	41	γ^2 Ursæ Minoris	P	..	..	5·3	14·0	..	50·4	59·7	..	..	15. 20. 32·20		34·98				15. 20. 52·35	+ 5·54
	42	α Coronæ	P	30·0	33·2	36·3	..	45·6	..	55·0	58·1	1·2	15. 28. 45·60		46·36	3·76	17·40		15. 29. 3·73	— 0·30
	43	α Serpentis	P	..	..	..	..	26·1	31·8	34·6	37·3	40·1	15. 37. 26·15		26·62	44·00	17·38		15. 37. 44·00	— 0·91
Nov. 28	44	☉ 1 L.	P	..	1·4	4·4	7·4	13·4	19·3	22·4	25·2	..	16. 14. 13·33							
	45	☉ 2 L.	P	18·3	21·2	24·1	..	33·1	..	42·0	44·8	47·8	16. 16. 33·01		} 23·27				16. 15. 40·60	
	46	η Draconis	P	20·5	26·6	32·4	38·3	50·0	1·8	7·5	13·4	19·1	16. 21. 49·90		51·70				16. 22. 9·09	+ 2·68
	47	ζ Herculis	P	41·9	45·3	48·3	51·7	..	4·7	8·0	11·2	14·4	16. 35. 58·16		59·00	16·42	17·42		16. 36. 16·40	— 0·03
	48	η Herculis	P	43·6	47·5	50·8	54·4	1·4	8·6	12·4	15·8	19·4	16. 38. 1·51		2·51				16. 38. 19·91	+ 0·33

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
November 27, ε Virginis, to November 28, γ Draconis. The azimuthal error used is that determined on November 27 by tabular places of Polaris S.P. and Spica.

12. Very faint; foggy.

13. Faint.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at ob Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Dec. 2	1	Piazzi III. 23 ...	HC	54·9	58·6	1·8	5·2	11·6	..	..	25·1	28·4	3. 10. 11·72	+0·43	12·63			17·26	3. 10. 29·90	— 4·69
	2	η Tauri.....	HC	6·1	..	12·1	15·3	21·3	27·2	30·4	..	36·2	3. 39. 21·20	(+11·93)	21·94	39·28	17·34	[0·07]	3. 39. 39·21	— 4·34
	3	ψ Tauri	HC	18·0	21·4	24·4	27·4	33·9	40·2	43·3	46·5	49·6	3. 58. 33·83	[−2·18]	34·65				3. 58. 51·92	— 4·57
	4	τ Tauri.....	HC	..	..	..	..	23·0	..	31·4	..	36·8	4. 16. 22·90		23·43				4. 16. 40·70	— 3·96
	5	ε Tauri.....	HC	22·8	25·6	28·7	..	37·4	..	46·2	49·2	52·0	4. 20. 37·38		38·05	55·39	17·34		4. 20. 55·32	— 4·24
	6	89 Tauri	HC	4·6	7·4	10·2	13·2	18·9	24·7	27·8	30·6	33·4	4. 30. 18·94		19·56				4. 30. 36·83	— 4·16
	7	Polaris S.P. (E&E)	C	..	..	0·0	55·5	47·0	32·0	..	18·0	..	13. 11. 45·42	[−4·22]	11·90	28·86	16·96	17·35	1. 11. 29·32	−71·50
	8	Spica	C	41·3	44·2	47·0	49·8	55·4	1·1	3·8	6·6	9·4	13. 17. 55·37		55·54	13·06	17·52	[0·12]	13. 18. 12·96	— 1·75
Dec. 3	9	⊙ 1 L.	C	31·8	34·8	37·8	40·7	46·6	52·8	55·6	58·6	1·6	16. 35. 46·67		} 57·09				16. 37. 14·52	
	10	⊙ 2 L.....	C	52·6	55·7	58·6	1·5	7·4	13·7	16·6	19·5	22·5	16. 38. 7·53		59·77				21. 59. 17·23	— 2·10
	11	ι Aquarii	C	45·4	48·2	51·2	54·0	59·5	5·4	8·4	11·2	14·0	21. 58. 59·67		54·06				22. 20. 14·41	
	12	☽ 1 L.....	C	..	..	..	..	53·8	..	..	..	8·4	22. 18. 53·89		16·67	34·27	17·60	17·53†	....	
	13	α Andromedæ ...	D	0·2	3·4	6·5	9·7	16·0	22·3	25·4	28·5	31·6	0. 1. 15·92		48·27	5·78	17·51	17·47	0. 56. 5·75	— 3·22
	14	ε Piscium	C	34·0	36·8	39·5	42·3	47·8	53·4	56·3	59·0	1·9	0. 55. 47·86		11·51	28·49	16·98		1. 11. 28·99	−71·13
	15	Polaris ....(E&E)	C	..	5·0	57·5	51·0	37·0	..	..	..	..	1. 10. 37·42		12·64				1. 21. 30·12	— 7·31
	16	A Cassiopeiæ....	C	30·4	38·5	46·4	54·4	10·2	..	..	..	..	1. 21. 10·10		8·32	25·68	17·36		1. 24. 25·80	— 3·52
	17	η Piscium	C	53·6	56·5	59·2	2·1	7·8	13·5	16·4	19·3	22·0	1. 24. 7·79		16·67	34·04	17·37		1. 34. 34·15	— 3·38
	18	ν Piscium	C	2·4	5·3	8·0	10·8	16·3	21·8	24·7	27·4	30·2	1. 34. 16·29		0·17				13. 42. 17·65	+ 0·21
	19	η Ursæ Maj. S.P.	C	39·4	43·6	47·7	52·3	1·0	..	..	..	..	1. 42. 0·89		4·12	21·57	17·45	17·53†	....	
	20	β Arietis	D	48·7	51·8	54·7	57·6	3·5	9·4	12·4	15·4	18·3	1. 47. 3·51		49·83			17·47	1. 48. 7·31	— 4·35
	21	Bradley 253.....	C	..	..	..	..	48·9	55·8	59·3	2·8	6·1	1. 47. 48·90		2·70				1. 48. 20·18	— 4·35
	22	56 Andromedæ ..	C	..	..	..	..	..	..	..	15·6	19·0	1. 48. 1·77		15·27				2. 0. 32·75	— 4·48
	23	58 Andromedæ ..	C	57·0	0·6	3·9	7·5	14·3	21·4	24·8	28·3	31·6	2. 0. 14·34		26·37				2. 4. 43·85	— 4·18
	24	6 Trianguli	C	9·6	12·9	16·1	19·3	25·6	32·0	35·2	38·4	41·6	2. 4. 25·60		51·64				2. 8. 9·12	— 4·32
	25	7 Trianguli	C	34·4	37·7	41·0	44·3	50·8	57·4	0·7	4·0	7·3	2. 7. 50·81		21·63				2. 14. 39·11	— 4·74
	26	Piazzi II. 61	C	2·2	6·1	9·6	13·4	20·6	28·0	31·7	35·2	39·0	2. 14. 20·61		21·16				4. 47. 38·65	— 4·00
	27	π^4 Orionis.....	C	6·7	9·6	12·3	15·1	20·6	26·4	29·1	31·9	34·8	4. 47. 20·70		1·56				4. 50. 19·05	— 5·04
	28	4 Aurigæ	C	..	46·7	50·2	53·7	0·6	7·6	11·1	14·7	..	4. 50. 0·61		35·79	53·24	17·45		4. 59. 53·29	— 3·39
	29	ε Leporis	C	20·8	24·0	26·9	29·9	35·7	41·8	44·8	47·8	50·9	4. 59. 35·81		7·50				5. 4. 25·00	— 5·06
	30	μ Aurigæ	C	48·8	52·6	56·0	59·4	6·6	13·6	17·2	20·7	24·2	5. 4. 6·53		14·53				5. 9. 32·03	— 4·79
	31	16 Aurigæ	C	57·2	0·6	3·8	7·0	13·6	20·4	23·7	27·0	30·3	5. 9. 13·69		24·97				5. 10. 42·47	— 4·81
	32	18 Aurigæ	C	..	..	..	17·5	24·1	30·8	34·2	37·4	40·8	5. 10. 24·11		11·34				5. 18. 28·84	— 4·16
	33	113 Tauri	C	56·4	59·2	2·1	5·0	10·8	16·7	19·5	22·4	25·2	5. 18. 10·79		53·88				5. 20. 11·38	— 4·13
	34	116 Tauri	C	39·0	42·0	44·8	47·6	53·3	59·2	1·9	4·8	7·7	5. 19. 53·34		58·92	16·49	17·57		5. 25. 16·42	— 3·74
	35	δ Orionis	C	44·8	47·5	50·3	53·1	58·6	4·2	7·1	9·8	12·4	5. 24. 58·61		0·22				5. 37. 17·72	— 4·11
	36	128 Tauri.....	C	45·2	48·2	51·2	54·0	59·6	5·6	8·3	11·2	14·0	5. 36. 59·67		41·61				5. 42. 59·11	— 4·05
	37	135 Tauri.....	C	26·8	29·7	32·6	35·4	41·2	46·8	49·8	52·4	55·3	5. 42. 41·09		26·13				6. 34. 43·63	— 4·00
	38	26 Geminorum ..	C	11·1	14·0	16·9	19·7	25·5	31·4	34·3	37·1	40·2	6. 34. 25·55		56·60				6. 37. 14·10	— 4·99
	39	56 Aurigæ	C	36·3	40·4	44·0	47·9	55·5	3·3	7·0	10·8	14·7	6. 36. 55·50		39·57				6. 43. 57·07	— 4·70
	40	59 Aurigæ	C	21·0	24·4	28·0	31·5	38·6	45·6	49·4	52·8	56·4	6. 43. 38·59		37·20				6. 44. 54·70	— 4·68
	41	61 Aurigæ	C	..	..	..	..	..	43·2	47·0	50·5	54·0	6. 44. 36·23		46·49	4·06	17·57		6. 48. 3·99	— 3·42
	42	θ Canis Majoris ..	C	32·2	35·2	37·9	40·8	46·3	52·0	54·8	57·7	0·5	6. 47. 46·35		6·72				6. 52. 24·22	
	43	Uranus	C	51·0	54·1	57·1	0·0	6·1	12·2	15·2	17·9	21·1	6. 52. 6·05							
Dec. 4	44	Jupiter 1 L.....	JC	8·5	..	14·1	..	22·6	..	31·2	..	36·8	22. 11. 22·62	(+11·04)	} 24·04			17·62	22. 11. 41·55	
	45	Jupiter 2 L.....	JC	11·1	..	16·8	..	25·3	..	33·8	..	39·4	22. 11. 25·26	[−4·47]				[−0·12]		
	46	σ Aquarii.....	JC	6·7	9·8	12·5	15·4	20·9	26·7	29·5	32·3	35·0	22. 23. 20·95		21·06	38·56	17·50	..	22. 23. 38·57	— 2·20
	47	Groombridge 3834	JC	..	..	..	..	37·2	59·7	10·6	21·6	32·7	22. 29. 37·22		40·57				22. 29. 58·08	— 2·47

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·500.
Correction for passage of Semidiameter, No. 12, +62s·88.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.
December 2, Polaris S.P., to December 3. The azimuthal error by Polaris S.P. and Polaris, allowing 0s·41 for clock-rate and change of R.A.
December 4 to 6. The azimuthal error used is the mean of those (−4″·62 and −4″·32) determined by tabular places of ε Piscium and Polaris on December 4, and of δ Ursæ Minoris S.P. and Cephei 51 on December 6, allowing in the latter case −0s·01 for clock-rate.

5. Very tremulous.
12. Immediately after the observation the Moon was clouded; no observation of N.P.D. could be made. Correction to R.A. on true Meridian, +0s·01.
15. Exceedingly faint from clouds.
28. Double; the southern and larger star was observed.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate]	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Dec. 4	1	ζ Pegasi	JC	..	23·1	25·7	..	34·2	39·8	42·7	45·4	48·3	22. 34. 34·18	+0·43	34·58	52·05	17·47	17·62	22. 34. 52·09	— 2·34
	2	λ Aquarii	JC	11·2	..	16·8	19·6	25·2	30·8	33·5	..	39·0	22. 45. 25·14	(+11·34)	25·29	42·71	17·42	[−0·12]	22. 45. 42·80	— 2·33
	3	81 Aquarii	JC	59·4	2·4	5·3	8·0	13·5	19·1	21·9	24·7	27·5	22. 54. 13·51	[−4·47]	13·67				22. 54. 31·18	— 2·38
	4	☽ 1 L.	JC	27·0	29·8	32·6	35·5	41·0	46·9	49·8	52·4	55·4	23. 7. 41·13		41·30				23. 9. 1·85	
	5	γ Piscium	E	46·7	49·7	52·4	55·3	0·9	6·3	9·0	11·8	14·4	23. 10. 0·70		0·99	18·79	17·80	17·90†	....	
	6	κ Piscium	JC	37·8	40·6	..	46·1	51·5	57·3	..	2·7	5·6	23. 19. 51·63		51·90	9·43	17·53	17·62	23. 20. 9·40	— 2·59
	7	16 Piscium	JC	7·0	9·9	12·8	15·4	20·9	26·5	29·1	32·0	34·8	23. 29. 20·91		21·19				23. 29. 38·69	— 2·63
	8	ι Andromedæ	JC	..	..	..	..	22·0	29·5	33·3	36·9	40·7	23. 31. 21·93		22·91				23. 31. 40·41	— 3·15
	9	ι Piscium	E	37·4	40·1	42·9	45·6	51·1	56·8	59·8	2·3	5·1	23. 32. 51·21		51·54	9·30	17·76	17·90†	....	
	10	δ Sculptoris	JC	28·9	..	35·3	38·4	44·6	51·1	54·3	..	0·6	23. 41. 44·71		44·55	2·03	17·48	17·62	23. 42. 2·05	— 2·45
	11	γ Ursæ Maj. S.P.	JC	..	14·8	19·6	24·3	34·0	43·3	48·2	52·9	..	23. 46. 33·80		32·44				11. 46. 49·94	— 1·14
	12	12 Ceti	JC	..	49·1	51·8	54·7	0·2	5·8	8·8	11·4	..	0. 23. 0·22		0·42	17·92	17·50	17·50	0. 23. 17·92	— 2·87
	13	κ Draconis S.P.	JC	..	..	5·4	13·7	30·6	47·2	55·4	..	..	0. 27. 30·55		28·51				12. 27. 46·01	+ 1·26
	14	α Cassiopeiæ	JC	19·5	24·7	29·4	34·3	44·0	54·1	59·0	..	..	0. 32. 44·13		45·55				0. 33. 3·05	— 4·54
	15	Piazzi 0. 216	JC	0·0	2·9	5·5	8·4	13·9	19·4	22·2	25·0	27·7	0. 46. 13·86		14·17				0. 46. 31·67	— 3·10
	16	Neptune	JC	..	35·1	38·0	40·7	46·1	51·8	54·5	57·3	..	0. 47. 46·17		46·48				0. 48. 3·98	
	17	ε Piscium	JC	34·0	36·9	39·6	42·4	47·9	53·5	56·2	58·8	1·8	0. 55. 47·87		48·23	5·77	17·54		0. 56. 5·73	— 3·21
	18	Polaris (E&E)	JC	10·0	5·0	37·5	50·5	35·0	..	..	..	..	1. 10. 37·42		9·99	27·77	17·78		....	
	19	Eurynome	JC	..	14·9	17·6	20·6	26·1	31·8	34·8	37·6	..	3. 18. 26·16		26·60				3. 18. 44·08	
	20	f Tauri	JC	3·8	6·6	9·6	12·3	18·0	23·6	26·6	29·4	32·2	3. 23. 17·98		18·41	35·98	17·57		3. 23. 35·89	— 3·97
	21	Piazzi III. 104	JC	58·1	1·6	5·0	8·6	15·4	22·4	26·0	29·3	32·8	3. 32. 15·43		16·29				3. 32. 33·77	— 4·95
	22	ν Persei	JC	..	..	..	49·4	56·8	4·4	..	11·9	..	3. 35. 56·86		57·83				3. 36. 15·31	— 5·23
	23	Piazzi III. 178	JC	8·5	14·6	20·1	25·8	37·1	48·3	54·3	59·8	5·5	3. 45. 37·05		38·72				3. 45. 56·20	— 7·23
	24	A² Tauri	JC	..	..	5·4	..	14·3	20·3	23·1	26·2	..	3. 57. 14·26		14·83				3. 57. 32·31	— 4·33
	25	Piazzi III. 249	JC	54·3	57·2	0·1	3·0	8·7	14·6	17·4	20·4	23·2	4. 0. 8·73		9·22				4. 0. 26·70	— 4·17
	26	f Persei	JC	..	..	..	..	37·4	44·7	48·3	52·0	55·4	4. 5. 37·39		38·31				4. 5. 55·79	— 5·18
	27	Groombridge 804	JC	..	..	..	..	42·7	50·5	54·2	57·8	1·5	4. 8. 42·91		43·87				4. 9. 1·35	— 5·29
	28	h Tauri	JC	0·3	..	6·1	8·9	14·6	20·4	23·2	..	28·9	4. 12. 14·61		15·06				4. 12. 32·54	— 4·10
	29	r Tauri	JC	8·9	11·8	14·6	17·4	22·8	28·6	31·4	34·2	37·0	4. 16. 22·94		23·33				4. 16. 40·81	— 3·97
	30	Aldebaran	JC	..	52·3	55·0	57·9	3·6	9·5	12·5	15·2	..	4. 28. 3·67		4·16	21·64	17·48		4. 28. 21·64	— 4·17
Dec. 5	31	☉ 2 L.	P	34·2	37·1	40·2	43·2	..	..	..	..	..	16. 46. 49·13		49·08			17·78	16. 45. 56·03	
	32	α Lyræ	P	..	53·8	57·2	1·0	7·8	15·1	18·6	22·0	..	18. 32. 7·88		8·78	26·23	17·45	[−0·40]	18. 32. 26·25	— 0·10
	33	ε Pegasi	C	9·4	12·3	15·1	18·0	23·5	29·2	32·0	34·9	37·5	21. 37. 23·52		23·91	41·19	17·28	17·64†	....	
	34	γ Ceti	P	56·7	59·7	..	..	10·5	16·2	18·8	21·7	24·4	2. 36. 10·56		10·86	28·22	17·36	17·38	2. 36. 28·20	— 3·57
	35	δ Persei	P	54·9	59·1	3·0	7·2	15·3	23·6	27·6	31·7	35·6	3. 33. 15·29		16·40				3. 33. 33·72	— 5·61
	36	η Tauri	P	..	..	..	..	21·6	27·5	30·4	33·6	36·4	3. 39. 21·41		22·01	39·30	17·29		3. 39. 39·33	— 4·36
	37	Groombridge 779	P	..	..	..	..	..	32·2	48·5	5·7	22·3	4. 3. 58·31		3·30				4. 4. 20·61	—17·67
	38	Piazzi IV. 31	P	32·2	..	39·7	43·2	..	..	1·8	5·5	9·2	4. 10. 50·67		51·62				4. 11. 8·93	— 5·28
	39	χ Tauri	P	0·6	..	7·0	..	16·1	22·3	25·4	28·4	31·4	4. 14. 16·09		16·71				4. 14. 34·02	— 4·48
	40	κ² Tauri	P	1·3	..	..	10·4	16·3	22·2	25·3	28·3	31·2	4. 17. 16·28		16·85				4. 17. 34·16	— 4·37
	41	θ¹ Tauri	P	30·8	33·7	36·6	..	..	50·9	..	56·6	59·6	4. 20. 45·15		45·63				4. 21. 3·08	— 4·16
	42	e Persei	P	..	1·3	5·0	8·7	15·8	23·2	26·9	30·8	..	4. 27. 15·91		16·85				4. 27. 34·16	— 5·26
	43	Aldebaran	P	49·5	52·4	55·2	58·2	3·8	9·8	12·7	15·5	18·2	4. 28. 3·89		4·38	21·65	17·27		4. 28. 21·69	— 4·18
	44	Bradley 635	P	..	..	..	..	..	15·5	18·4	21·0	..	4. 29. 9·95		10·16				4. 29. 27·47	— 3·69
	45	4 Camelopardali	P	..	..	29·4	34·1	44·2	54·2	59·3	..	..	4. 36. 44·19		45·64				4. 37. 2·94	— 6·70
	46	Piazzi IV. 179	P	2·7	5·8	8·7	11·6	17·4	23·3	26·3	29·2	32·1	4. 38. 17·42		17·94				4. 38. 35·24	— 4·26
	47	5 Camelopardali	P	54·9	40·0	44·7	49·5	59·1	9·0	13·6	18·7	23·3	4. 43. 59·15		0·54				4. 44. 17·84	— 6·51
	48	π¹ Orionis	P	..	9·6	12·4	15·3	21·0	26·6	29·4	32·2	..	4. 47. 20·89		21·29				4. 47. 38·59	— 4·02

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Corrections for passage of Semidiameter, Nos. 4 and 31, +63s·04: and −70s·56.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

3. The time at the 6th wire has also been used for the 3rd wire of an Altazimuth observation, ε Pegasi, Face Left.
4. Correction to R.A. on true Meridian, +0s·01.
30. Cloudy.
31. Extremely cloudy; not visible at the passage over the other wires.
34. Observed over the wires illuminated.
47. Very cloudy.
48. Very tremulous.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Dec. 12	1	θ Aquarii.....	JC	22·5	25·3	28·1	30·9	36·3	42·0	44·9	47·7	50·4	22. 9. 36·42	+0·40	36·51	50·86	14·35	15·10	22. 9. 50·88	— 2·07
	2	Jupiter 1 L	JC	22·1	..	28·0	..	36·2	..	44·9	..	50·3	22. 15. 36·28	(+9·03)	37·63			[−0·79]		
	3	Jupiter 2 L	JC	24·8	..	30·5	..	38·9	..	47·4	..	53·0	22. 15. 38·90	[−4·39]					22. 15. 52·00	
	4	σ Aquarii.....	JC	9·9	12·8	15·7	18·4	24·1	29·8	32·6	35·4	38·3	22. 23. 24·08		24·13	38·47	14·34		22. 23. 38·49	— 2·11
	5	Groombridge 3834	JC	..	..	7·1	18·5	40·0	2·8	13·8	..	..	22. 29. 40·32		43·15				22. 29. 57·51	— 1·78
	6	μ Pegasi.....	E	7·4	10·4	..	16·4	22·4	28·6	..	34·6	37·6	22. 43. 22·46		22·93	37·49	14·56	15·27†	....	
	7	λ Aquarii.....	E	..	17·0	19·7	22·5	..	33·7	36·4	39·3	42·0	22. 45. 28·05		28·13	42·61	14·48		....	
	8	ι Ceti	JC	13·3	16·1	18·9	21·8	27·3	33·0	35·7	38·6	41·4	0. 12. 27·31		27·38	41·65	14·27	14·31	0. 12. 41·68	— 2·66
	9	κ Draconis S.P...	JC	52·4	0·7	8·8	17·1	33·8	50·3	58·7	6·7	15·4	0. 27. 33·86		32·06				12. 27. 46·36	+ 0·70
	10	α Cassiopeiæ	JC	22·7	27·8	32·7	37·6	47·3	57·4	2·4	7·1	12·0	0. 32. 47·37		48·54				0. 33. 2·83	— 4·34
	11	21 Cassiopeiæ ...	JC	54·2	4·8	14·4	25·0	45·0	5·7	16·0	26·1	36·3	0. 36. 45·17		47·77				0. 37. 2·06	— 6·79
	12	Piazzi 0. 216	JC	3·3	..	8·9	11·7	17·0	22·7	25·5	..	31·0	0. 46. 17·14		17·36				0. 46. 31·65	— 3·02
	13	Neptune.....	JC	19·9	22·9	25·6	28·3	33·7	39·3	42·2	44·9	47·7	0. 47. 33·81		34·03				0. 47. 48·31	
	14	μ Andromedæ ...	JC	54·0	57·7	1·1	4·6	11·6	18·6	22·2	25·7	29·1	0. 49. 11·59		12·28	26·48	14·20		0. 49. 26·56	— 3·76
	15	β Andromedæ ...	JC	49·6	53·1	56·3	59·7	6·4	13·3	16·6	20·0	23·3	1. 2. 6·44		7·08	21·37	14·29		1. 2. 21·36	— 3·81
	16	Polaris ....(E&E)	JC	..	..	2·5	56·0	40·5	32·0	25·5	..	..	1. 10. 42·07		10·04	22·66	12·62		1. 11. 24·31	—65·30
	17	A Cassiopeiæ....	JC	..	..	49·6	57·5	13·3	29·4	37·4	..	..	1. 21. 13·35		15·36				1. 21. 29·63	— 6·98
	18	η Ursæ Maj. S.P..	JC	42·6	47·0	51·3	55·6	4·3	12·7	17·2	21·4	25·6	1. 42. 4·24		3·56				13. 42. 17·81	— 0·08
	19	β Arietis	JC	52·1	55·1	58·0	0·9	6·9	12·8	15·7	18·6	21·6	1. 47. 6·82		7·25	21·51	14·26		1. 47. 21·50	— 3·73
	20	50 Cassiopeiæ ...	JC	..	..	33·4	42·3	59·8	17·6	26·7	..	..	1. 51. 59·86		2·12				1. 52. 16·37	— 8·27
	21	49 Eridani.....	JC	58·1	1·0	3·7	6·4	11·9	17·6	20·3	23·1	25·8	4. 3o. 11·96		12·15				4. 3o. 26·31	— 3·84
	22	Piazzi IV. 179 ..	JC	6·1	9·1	11·9	14·8	20·7	26·5	29·5	32·4	35·2	4. 38. 20·66		21·06				4. 38. 35·22	— 4·32
	23	1 Aurigæ	JC	30·5	34·2	..	41·0	48·0	54·9	..	1·8	5·3	4. 40. 47·91		48·60				4. 41. 2·76	— 5·12
	24	5 Camelopardali .	JC	..	44·0	48·2	52·9	2·6	12·3	17·1	22·0	..	4. 44. 2·66		3·81				4. 44. 17·97	— 6·60
	25	Bradley 671.....	JC	..	..	..	2·0	15·8	29·8	36·7	43·6	50·5	4. 49. 15·71		17·45				4. 49. 31·60	— 8·74
	26	5 Aurigæ	JC	..	..	..	53·2	0·2	7·5	11·1	14·7	18·2	4. 51. 0·31		1·03				4. 51. 15·18	— 5·24
	27	68 Eridani.....	JC	43·9	46·7	49·4	52·1	57·7	3·3	6·2	8·8	11·6	5. 1. 57·71		57·83				5. 2. 11·98	— 3·77
	28	12 Aurigæ	JC	7·1	11·2	15·1	19·1	27·1	35·1	38·9	43·1	47·0	5. 6. 27·04		27·92				5. 6. 42·06	— 5·73
	29	ρ Aurigæ	JC	..	59·5	3·1	6·9	14·2	..	..	29·0	32·9	5. 12. 14·23		15·01				5. 12. 29·15	— 5·39
	30	σ Aurigæ.....	JC	..	..	..	20·4	27·3	34·2	37·8	41·2	44·6	5. 15. 27·27		27·96				5. 15. 42·10	— 5·12
	31	113 Tauri.....	JC	..	..	5·6	8·6	14·4	20·0	23·0	25·8	..	5. 18. 14·28		14·66				5. 18. 28·80	— 4·28
	32	δ Orionis	JC	48·3	..	54·0	56·7	2·3	7·8	10·6	..	16·1	5. 25. 2·24		2·42	16·60	14·18		5. 25. 16·55	— 3·85
	33	28 Aurigæ.....	JC	9·3	..	16·4	20·1	27·2	34·5	38·0	..	45·2	5. 39. 27·21		27·93				5. 39. 42·05	— 5·20
	34	ν Aurigæ	JC	31·2	34·6	38·0	..	..	55·4	58·8	2·3	5·8	5. 41. 48·40		49·09				5. 42. 3·21	— 5·08
	35	Brad. 904 (1st Star)	JC	13·5	17·2	20·4	24·0	30·8	37·6	41·1	44·7	47·8	6. 6. 30·75		31·41				6. 6. 45·52	— 4·94
	36	Brad. 904 (2d Star)	JC	14·2	17·8	21·1	24·6	31·4	38·2	41·8	45·2	48·6	6. 6. 31·40		32·06				6. 6. 46·17	— 4·94
	37	Bradley 918.....	JC	33·0	36·4	39·8	43·2	49·8	56·7	0·1	3·5	6·8	6. 9. 49·88		50·53				6. 10. 4·64	— 4·88
	38	μ Geminorum ...	JC	29·6	32·8	35·8	38·6	44·7	50·6	53·6	56·8	59·6	6. 14. 44·65		45·11	59·22	14·11		6. 14. 59·21	— 4·37
	39	Bradley 937.....	JC	11·8	15·3	18·5	21·9	28·6	35·4	38·7	41·9	45·4	6. 19. 28·57		29·21				6. 19. 43·31	— 4·81
	40	γ Geminorum ...	JC	37·0	39·8	42·8	45·7	51·4	57·1	0·0	2·9	5·6	6. 29. 51·34		51·71	5·83	14·12		6. 30. 5·81	— 4·16
	41	☽ 2 L.....	JC	53·5	56·5	59·4	2·5	8·5	14·5	17·6	20·4	23·5	6. 54. 8·46		8·86				6. 53. 9·28	
	42	Polaris S.P.(E&E)	D	7·0	0·0	54·0	48·0	38·5	24·5	..	..	..	13. 11. 37·68		10·01	22·28	12·27	14·57	1. 11. 23·96	—64·92
	43	Spica	D	45·3	48·1	51·0	53·8	59·3	5·0	7·7	10·6	13·4	13. 17. 59·32		59·38	13·34	13·96	[−1·12]	13. 18. 13·33	— 2·03
	44	ζ Virginis	D	28·9	31·7	34·4	37·2	42·7	48·3	51·0	53·8	56·4	13. 27. 42·68		42·86	56·86	14·00		13. 27. 56·80	— 1·80
Dec. 13	45	τ¹ Arietis.....	D	..	..	..	17·8	23·7	29·6	32·5	35·5	38·4	3. 13. 23·64		24·07	37·30	13·23	13·45	3. 13. 37·37	— 4·18
	46	o Tauri.....	D	15·8	18·6	21·4	24·2	29·7	35·5	38·1	41·0	43·7	3. 17. 29·74		30·02	43·38	13·36		3. 17. 43·32	— 3·85
	47	ε Eridani	C	16·1	19·0	21·7	24·6	30·1	35·8	38·7	41·4	44·3	3. 26. 30·16		30·23	43·34	13·11	13·27†	....	
	48	η Tauri.....	D	10·5	13·7	16·5	19·4	25·6	31·6	34·7	37·7	40·7	3. 39. 25·57		26·04	39·32	13·28	13·45	3. 39. 39·32	— 4·38

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, 31r·500.

Correction for passage of Semidiameter, No. 41, −73s·68.

† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

December 12 and 13. The azimuthal error used is that determined on December 12 by Polaris and Polaris S.P., allowing 0s·02 for clock-rate and change of R.A.

40. Cloudy.

41. Very faint at times; heavy clouds passing. Correction to R.A. on true Meridian, + 0s·02.

45, 48. Very cloudy.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	″	s	s	s	s	h m s	s
Dec. 13	1	26 Canis Majoris.	D	20·9	23·9	27·0	30·1	36·2	42·4	45·4	48·4	51·4	7. 6. 36·16	+0·40	36·02			13·45	7. 6. 49·14	— 3·47
	2	δ Geminorum....	D	46·4	49·6	52·4	55·4	1·3	7·4	10·4	13·2	16·3	7. 12. 1·35	(+9·03)	1·80	14·89	13·09	[−1·12]	7. 12. 14·91	— 4·19
	3	21 Lyncis.....	D	10·4	14·8	18·9	23·2	31·7	40·3	44·6	48·7	53·0	7. 16. 31·69	[−4·39]	32·65				7. 16. 45·76	— 5·36
	4	68 Geminorum ..	D	37·0	40·0	43·0	45·7	51·4	57·3	0·3	..	..	7. 25. 51·48		51·85				7. 26. 4·95	— 3·98
	5	o Geminorum....	D	2·7	6·1	9·4	12·8	19·6	26·3	29·7	33·1	36·4	7. 30. 19·52		20·16				7. 30. 33·26	— 4·48
	6	Procyon	D	56·8	59·7	2·4	5·2	10·8	16·3	19·0	22·0	24·4	7. 32. 10·71		10·96	24·07	13·11		7. 32. 24·06	— 3·72
	7	Bradley 1104....	D	..	..	..	41·7	50·3	59·1	3·6	7·8	12·1	7. 33. 50·31		51·32				7. 34. 4·42	— 5·28
	8	D 2 L.....	D	40·4	43·4	46·3	49·2	55·2	1·3	4·2	7·2	10·2	7. 59. 55·24		55·63				7. 58. 56·08	
Dec. 15	9	γ^1 Leonis	JC	15·6	18·6	21·6	24·6	30·4	36·2	39·2	42·2	45·1	10. 12. 30·36	+0·55	30·77	41·24	10·47		....	
	10	δ Corvi.....	D	..	..	..	..	51·2	57·1	59·8	2·8	5·7	12. 22. 51·24	(+8·25)	51·25	1·67	10·42	11·12†	....	
	11	β Corvi.....	D	1·6	4·8	7·6	10·6	16·5	22·5	25·5	28·5	31·8	12. 27. 16·57	[−3·86]	16·50	26·77	10·27	[−1·49]	....	
	12	δ Virginis.....	HC	32·0	34·9	37·6	40·4	..	51·3	54·1	57·0	59·8	12. 48. 45·86		46·09	56·33	10·24	11·00	12. 48. 56·29	— 2·02
	13	ε Virginis.....	HC	10·6	13·6	16·2	19·1	..	..	33·2	36·0	38·9	12. 55. 24·71		25·02	35·23	10·21		12. 55. 35·22	— 1·87
	14	19 Canum Venat.	HC	..	..	..	15·7	23·1	30·5	34·2	..	..	13. 9. 23·06		23·79				13. 9. 33·97	— 1·00
	15	Polaris S.P. (E&E)	HC	4·5	7·5	..	..	..	..	16·0	8·0	..	13. 11. 35·12		9·59	19·75	10·16		....	
	16	ζ Virginis.....	HC	32·8	35·7	38·3	41·1	46·6	52·2	54·9	57·7	0·4	13. 27. 46·60		46·79	56·94	10·15		13. 27. 56·95	— 1·88
Dec. 16	17	η Geminorum....	HC	30·9	33·9	..	..	45·8	..	..	..	..	6. 6. 45·83		46·27	55·44	9·17	9·51	6. 6. 55·40	— 4·45
	18	μ Geminorum ...	HC	..	37·9	40·9	43·8	..	..	58·8	1·7	4·8	6. 14. 49·78		50·22	59·29	9·07		6. 14. 59·34	— 4·44
Dec. 17	19	d Leonis.....	K	23·0	..	28·7	31·4	36·9	42·5	45·3	..	50·4	10. 53. 36·87	(+9·14)	37·21	44·27	7·06	7·91	....	
	20	χ Leonis.....	K	50·7	53·4	56·1	58·9	4·3	10·0	12·9	15·8	18·7	10. 58. 4·50	[−2·36]	4·88	12·06	7·18	[−1·75]	....	
	21	σ Leonis.....	E	57·9	0·8	3·4	6·1	11·8	17·4	20·2	22·9	25·8	11. 14. 11·78		12·15			8·02	11. 14. 19·34	— 2·68
	22	89 Leonis.....	E	14·8	17·5	20·2	23·1	28·7	34·2	37·0	39·7	42·4	11. 27. 28·59		28·93			[−1·77]	11. 27. 36·11	— 2·61
	23	υ Leonis.....	E	..	..	..	..	..	8·9	11·8	14·6	17·2	11. 30. 3·41		3·71	10·96	7·25		11. 30. 10·88	— 2·64
	24	β Leonis	E	..	..	..	..	..	..	20·0	22·9	25·7	11. 42. 11·37		11·83	18·83	7·00		11. 42. 18·99	— 2·39
Dec. 18	25	2 Ceti.....	E	37·0	40·1	42·9	45·8	51·6	57·4	0·3	3·2	6·2	23. 56. 51·58	(+10·24)	51·72	57·85	6·13		23. 56. 57·97	— 2·42
	26	α Andromedæ ...	E	11·4	14·7	17·7	20·9	27·1	33·6	36·7	39·8	42·9	0. 1. 27·17		27·86	34·04	6·18	6·25	0. 1. 34·11	— 3·00
	27	Radcliffe 56 (E&E)	E	..	..	4·5	10·5	13·0	22·5	..	..	..	0. 12. 14·28		44·65				0. 12. 50·88	—38·54
	28	12 Ceti.....	E	57·4	0·1	3·0	5·9	11·2	17·0	19·7	22·6	25·2	0. 23. 11·32		11·61	17·77	6·16		0. 23. 17·83	— 2·72
	29	α Cassiopeiæ	E	30·4	35·4	40·2	45·0	54·8	4·8	9·8	14·7	19·6	0. 32. 54·92		56·23				0. 33. 2·44	— 4·18
	30	Piazzi 0. 216....	E	11·2	14·0	16·8	19·6	25·1	30·7	33·4	36·1	38·9	0. 46. 25·06		25·44				0. 46. 31·63	— 2·95
	31	Neptune.....	E	..	24·0	26·8	29·6	35·0	40·7	43·2	46·1	..	0. 47. 35·02		35·40				0. 47. 41·59	
	32	μ Andromedæ ...	E	1·8	5·2	8·7	12·3	19·4	26·3	30·0	33·4	37·0	0. 49. 19·30		20·15	26·39	6·24		0. 49. 26·54	— 3·67
	33	β Andromedæ ...	E	57·3	0·9	4·2	7·7	14·2	21·1	24·3	27·8	31·2	1. 2. 14·26		15·04	21·29	6·25		1. 2. 21·21	— 3·73
	34	Polaris (E&E)....	E	..	..	5·5	54·5	44·0	..	..	..	..	1. 10. 43·83		11·51	17·63	6·12		....	
	35	ξ Andromedæ ...	E	8·7	12·8	16·3	20·4	28·2	36·1	40·0	43·8	47·6	1. 14. 28·17		29·15				1. 14. 35·31	— 4·20
	36	A Cassiopeiæ....	E	..	..	57·2	5·3	21·0	37·1	45·2	..	..	1. 21. 21·07		23·19				1. 21. 29·34	— 6·73
	37	50 Cassiopeiæ ...	E	..	..	41·4	50·2	7·4	25·4	34·4	..	..	1. 52. 7·66		10·02				1. 52. 16·13	— 8·02
	38	α Arietis	E	..	..	29·0	32·0	38·0	44·0	47·0	49·8	53·0	1. 59. 37·94		38·55	44·67	6·12		1. 59. 44·65	— 3·84
	39	π Tauri	E	..	..	54·9	57·8	3·3	9·1	12·1	..	..	4. 19. 3·41		3·91				4. 19. 9·84	— 4·19
	40	θ^1 Tauri.....	E	42·0	45·0	47·9	50·8	56·2	..	..	8·0	11·0	4. 20. 56·44		56·96				4. 21. 2·89	— 4·24
	41	Aldebaran	E	0·9	3·9	6·9	9·5	15·4	21·0	23·9	26·7	29·6	4. 28. 15·28		15·81	21·74	5·93		4. 28. 21·73	— 4·27
	42	ϵ^1 Tauri.....	E	27·1	30·0	32·8	35·6	41·2	46·9	49·8	52·6	55·5	4. 30. 41·25		41·73				4. 30. 47·65	— 4·17
	43	σ^1 Tauri.....	E	..	..	22·7	25·6	31·4	37·2	40·1	42·9	46·0	4. 31. 31·41		31·94				4. 31. 37·86	— 4·26
	44	Piazzi IV. 179...	E	14·2	17·2	20·2	23·0	..	..	..	40·7	43·6	4. 38. 28·88		29·44				4. 38. 35·35	— 4·35
	45	1 Aurigæ.....	E	..	42·3	45·7	49·1	56·0	3·0	6·2	10·0	..	4. 40. 56·00		56·84				4. 41. 2·75	— 5·16

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The Intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Correction for passage of Semidiameter, No. 8, −72s·65.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.
December 15. The azimuthal error by tabular places of Polaris S.P. and ζ Virginis, allowing −0s·02 for clock-rate.
December 17 and 18. The azimuthal error used is that determined on December 18, by tabular places of 12 Ceti and Polaris, allowing −0s·05 for clock-rate.

4. Very cloudy. 6. Very faint. 7, 15. Cloudy. 8. Very faint; cloudy. Correction to R.A. on true Meridian, +0s·02.
9. Extremely faint. 16. Very faint; cloudy. 17. Faint.

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MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and (Losing Rate).	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Dec. 24	1	Br. 1642 (1st Star)	P	..	..	..	..	18·0	53·1	10·4	28·0	..	12. 9. 17·99	+0·99	22·85			55·74	12. 10. 17·78	+ 1·49
	2	Br. 1642 (2d Star)	P	..	..	..	..	22·1	57·0	14·8	31·9	..	12. 9. 22·06	(+10·22)	26·92			[−1·61]	12. 10. 21·85	+ 1·49
	3	Bradley 1672 (E&E)	P	..	..	..	..	..	..	39·0	16·5	58·0	12. 12. 33·52	[−3·10]	0·53				12. 13. 55·45	+23·69
	4	δ^2 Corvi	P	..	55·4	58·4	1·1	6·8	12·7	15·6	18·5	..	12. 22. 6·89		7·04	1·97	54·93		....	
	5	35 Virginis	P	58·4	1·1	4·0	6·7	12·4	17·7	20·4	23·3	26·1	12. 40. 12·21		12·60	7·46	54·86		....	
	6	Polaris S.P. (E&E)	P	18·0	12·5	6·0	0·5	..	37·0	..	..	..	13. 10. 49·74		20·21	12·83	52·62		1. 11. 15·07	−54·47
Dec. 30	7	α Ceti.....(E&E)	HC	22·8	..	..	..	36·5	..	..	..	50·5	2. 54. 36·58	+0·84	36·88	23·27	46·39	46·64	....	
	8	2 Aurigæ ..(E&E)	HC	45·0	..	..	..	2·1	..	..	..	19·4	4. 43. 2·16	(+11·35)	3·03			[−1·65]	4. 43. 49·34	− 5·15
	9	Capella....(E&E)	HC	50·8	..	..	..	10·8	..	..	..	30·5	5. 6. 10·69	[−5·37]	11·80				5. 6. 58·09	− 5·83
	10	α Orionis ..(E&E)	HC	2·0	..	..	..	16·0	..	..	..	30·0	5. 47. 16·00		16·36	2·50	46·14		....	
	11	Cephei 51 .(E&E)	HC	..	13·5	9·5	..	..	56·0	54·0	52·0	48·5	6. 37. 1·07		19·37	65·48	46·11		....	
	12	δ Geminorum (E&E)	HC	..	..	..	..	28·3	..	..	..	43·3	7. 11. 28·32		28·91	15·21	46·30		....	
Dec. 31	13	⊙ 2 L.....(E&E)	C	5·6	..	..	..	..	..	..	..	36·0	18. 41. 20·79		20·69			46·68	18. 40. 54·87	
	14	α Aquilæ ..(E&E)	C	19·4	..	..	..	33·4	..	..	..	47·3	19. 43. 33·37		33·74	18·93	45·19	[−1·82]	....	
	15	☽ 1 L. ....(E&E)	C	30·5	..	..	..	44·9	..	..	..	59·1	22. 49. 44·83		44·97				22. 51. 32·30	
	16	Polaris S.P. (E&E)	K	..	..	13·0	8·0	59·0	..	..	..	29·0	13. 10. 58·11		22·51	6·47	43·96		....	
	17	Spica .....(E&E)	K	15·8	..	..	..	30·0	..	..	..	44·1	13. 17. 29·97		30·08	13·94	43·86		....	

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^r{\cdot}500$.

Corrections for passage of Semidiameter, Nos. 13 and 15, $-71^s{\cdot}09$: and $+62^s{\cdot}38$.

December 30 and 31. The azimuthal error used is the mean of those ($-5''{\cdot}34$ and $-5''{\cdot}40$) determined by tabular places of α Orionis and Cephei 51 on December 30, and of Polaris S.P. and Spica on December 31, allowing $-0^s{\cdot}05$ and $-0^s{\cdot}01$ for clock-rate in each case respectively.

7, 11. Very faint. 12. Faint : cloudy. 14. Very cloudy. 15. Very faint from clouds.

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ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF THE COLLIMATORS,

AND OF THE

REFLECTED IMAGE OF THE CENTRAL VERTICAL WIRE

OF THE

TRANSIT-CIRCLE,

FOR THE

DETERMINATION OF THE

ERRORS OF COLLIMATION AND LEVEL.

1867.

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MEAN READINGS of MICROMETER of NORTH COLLIMATOR for Coincidence of its WIRE with corresponding WIRE of SOUTH COLLIMATOR—*continued.*

Day and Hour, 1867.		Observer.	Mean Reading of Micrometer of North Collimator for Coincidence with South Collimator.	Reading at which Micrometer of North Collimator was left after observation.
	d h		r	r
July	25. 1	HC	0·774	0·774
	25. 23	W	0·790	0·774
	27. 1	JC	0·796	0·774
	28. 21	E	R 0·747	0·747
	29. 23	P	0·766	0·747
	31. 0	C	0·805	0·747
August	1. 1	JC	0·765	....
	2. 2	E	0·834	0·785
	2. 2	E	0·785	0·785
	2. 21	C	0·801	0·738
	4. 21	C	R 0·738	0·738
	4. 21	C	0·789	0·738
	5. 0	HC	0·745	0·738
	6. 21	C	0·801	0·738
	8. 1	E	0·790	0·738
	9. 2	JC	0·753	0·742
	10. 2	D	0·742	0·749
	11. 22	D	R 0·749	0·749
	12. 2	E	0·783	0·749
	12. 23	K	0·758	0·749
	14. 2	JC	0·836	0·749
	14. 22	C	0·795	0·749
	16. 0	L	0·825	0·749
	17. 2	E	0·802	0·749
	18. 21	C	R 0·784	0·784
	19. 2	C	0·816	0·784
	20. 3	K	0·826	0·784
	21. 23	P	0·784	0·784
	22. 23	W	0·775	0·784
	24. 2	JC	0·825	0·778
	25. 22	JC	R 0·778	0·778
	26. 23	P	0·783	0·778
	28. 23	L	0·790	0·778
	30. 2	JC	0·769	0·778
	31. 0	K	0·781	
September	1. 21	C	R 0·768	0·768
	1. 23	HC	0·760	0·768

Day and Hour, 1867.		Observer.	Mean Reading of Micrometer of North Collimator for Coincidence with South Collimator.	Reading at which Micrometer of North Collimator was left after observation.
	d h		r	r
September	3. 0	P	0·756	0·760
	4. 0	C	0·800	0·760
	4. 23	JC	0·815	0·760
	6. 1	C	0·822	....
	6. 1	L	0·816	0·819
	6. 23	E	0·784	0·819
	8. 22	E	R 0·744	0·744
	9. 1	JC	0·760	0·744
	10. 23	E	0·792	0·744
	12. 1	C	0·804	0·744
	13. 0	L	0·806	0·744
	15. 22	D	R 0·741	0·741
	16. 22	E	0·778	0·741
	17. 22	HC	0·751	0·741
	18. 23	P	0·771	0·741
	19. 23	HC	0·736	0·741
	21. 1	E	0·763	0·741
	22. 22	E	R 0·678	0·678
	23. 1	JC	0·727	0·678
	24. 1	K	0·721	0·678
	24. 22	E	0·767	0·767
	26. 1	D	0·717	0·717
	28. 2	JC	0·730	0·717
	29. 22	JC	R 0·668	0·668
	30. 1	C	0·725	0·668
	30. 22	P	0·724	0·668
October	2. 2	E	0·737	0·668
	3. 1	HC	0·710	0·668
	3. 22	C	0·731	0·668
	6. 21	C	R 0·658	0·658
	6. 23	E	0·659	0·658
	7. 22	C	0·712	0·658
	9. 0	D	0·692	0·692
	10. 0	K	0·681	0·692
	10. 22	E	0·694	0·692
	11. 21	C	0·682	0·692
	13. 21	C	R 0·633	0·633

One revolution of Micrometer of North Collimator = 24″·24.
One revolution of Micrometer of South Collimator = 24″·17.

The letter R signifies that the observation was taken with the Transit-Circle raised ; all the others were taken through the central cube.

August 2ᵈ. 2ʰ. Between the two observations given above, the reflector of the South Collimator was re-adjusted.
August 5ᵈ. 0ʰ. The wires of the South Collimator were very faint.

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MEAN READINGS of MICROMETER of NORTH COLLIMATOR for Coincidence of its WIRE with corresponding WIRE of SOUTH COLLIMATOR—*concluded.*

Day and Hour, 1867.	Observer.	Mean Reading of Micrometer of North Collimator for Coincidence with South Collimator.	Reading at which Micrometer of North Collimator was left after observation.	Day and Hour, 1867.	Observer.	Mean Reading of Micrometer of North Collimator for Coincidence with South Collimator.	Reading at which Micrometer of North Collimator was left after observation.
d h		r	r	d h		r	r
October 14. 22	E	0·634	0·633	November 17. 22	P	0·622	0·620
15. 22	C	0·675	0·633	17. 22	E	R 0·603	0·603
16. 22	HC	0·646	0·633	19. 1	K	0·632	0·603
18. 1	D	0·635	0·633	20. 0	E	0·617	0·617
18. 22	P	0·644	0·633	21. 1	D	0·621	0·621
20. 22	E	R 0·620	0·620	22. 1	JC	0·620	0·620
20. 22	E	0·642	0·620	22. 21	C	0·635	0·635
22. 22	S	0·615	0·615	24. 22	JC	R 0·586	0·586
22. 1	JC	0·661	0·615	25. 22	K	0·595	0·586
22. 23	E	0·650	0·650	27. 2	D	0·602	0·602
23. 21	C	0·635	0·650	27. 21	P	0·566	0·602
25. 1	D	0·644	0·644	28. 22	C	0·635	0·635
26. 2	E	0·634	0·634	29. 23	JC	0·599	0·599
27. 21	D	R 0·641	0·641				
27. 21	D	0·644	0·641	December 1. 22	D	R 0·593	0·593
28. 2	JC	0·664	0·664	1. 22	D	0·596	0·593
29. 1	L	0·679	0·679	2. 22	C	0·639	0·639
29. 21	C	0·661	0·679	3. 23	JC	0·630	0·630
30. 23	E	0·613	0·613	4. 23	P	0·617	0·630
				5. 22	E	0·620	0·620
November 1. 1	D	0·636	0·636	6. 22	C	0·628	0·628
2. 1	JC	0·681	0·681	9. 1	D	0·618	0·618
3. 23	E	0·631	0·631	10. 0	E	0·624	0·624
5. 1	D	0·633	0·633	12. 2	JC	0·611	0·611
6. 1	JC	0·655	0·655	13. 1	D	0·583	0·583
6. 21	C	0·662	0·655	13. 22	E	0·607	0·607
7. 21	E	0·625	0·625	15. 22	E	R 0·583	0·583
9. 1	D	0·618	0·618	15. 23	HC	0·590	0·590
10. 21	C	R 0·606	0·606	16. 23	GK	0·601	0·601
10. 21	C	0·624	0·606	17. 23	E	0·636	0·636
12. 2	E	0·706	....	21. 2	C	0·408	0·408
12. 2	D	0·643	....	22. 2	JC	R 0·371	0·371
12. 2	S	0·622	....	24. 0	D	0·370	0·370
12. 2	E	0·627	0·627	26. 2	E	0·386	0·386
12. 21	HC	0·610	0·610	26. 22	C	0·417	0·417
14. 1	JC	0·620	0·620	27. 23	P	0·392	0·392
14. 21	C	0·638	0·620	30. 0	HC	0·369	0·369
15. 23	K	0·618	0·620	30. 22	C	0·401	0·401

One revolution of Micrometer of North Collimator = 24″·24.
One revolution of Micrometer of South Collimator = 24″·17.

The letter R signifies that the observation was taken with the Transit-Circle raised; all the others were taken through the central cube.

October 20d. 22h. Before taking the reading given above, the reading of the Micrometer of the South Collimator was altered from ·400 to ·000 (decreasing) for vertical adjustment with reference to the Micrometer of the North Collimator.

November 12d. 2h. Readings were taken by different observers, particular care being taken to set the telescope of the Transit-Circle exactly vertical.

December 21d. 2h. Before taking this observation, the squares were found altogether out of adjustment. The square was adjusted vertically, but the wires seemed out of focus as seen with the Transit-Circle telescope.

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Observations for determining the Line of Collimation and Determinations of the Level Error of the Transit-Circle,

Mean Readings of the Transit Micrometer, for Line of Collimation — *concluded.*

Day and Hour of Observation.	Mean Reading for Coincidence with North Collimator.	Mean Reading for Coincidence with South Collimator.	Mean of Readings for North and South Collimators.	Adopted Reading for Line of Collimation.
1867. d h	r	r	r	r
Sept. 30. 1	31·298	31·715	31·507	
30. 22	31·385	31·692	31·539	
Oct. 2. 2	31·336	31·690	31·513	31·529
3 1	31·387	31·689	31·538	
5. 1	31·436	31·661	31·548	
6. 23	31·431	31·639	31·535	
9. 0	31·397	31·612	31·505	31·508
10. 0	31·386	31·597	31·492	
10. 22	31·399	31·611	31·505	
11. 21	31·412	31·592	31·502	
14. 22	31·474	31·573	31·524	
15. 22	31·469	31·584	31·527	31·523
16. 22	31·442	31·586	31·514	
18. 1	31·422	31·612	31·517	
18. 22	31·466	31·604	31·535	
20. 22	31·492	31·598	31·545	31·546
22. 1	31·476	31·617	31·547	
22. 23	31·392	31·622	31·507	
23. 21	31·388	31·589	31·489	31·504
25. 1	31·398	31·634	31·516	
26. 2	31·390	31·637	31·513	
28. 2	31·217	31·851	31·534	31·534
29. 1	31·233	31·798	31·516	
29. 21	31·228	31·790	31·509	
30. 23	31·476	31·635	31·556	31·523
Nov. 1. 1	31·422	31·659	31·541	
2. 1	31·381	31·609	31·495	
3. 23	31·500	31·584	31·542	
5. 1	31·508	31·575	31·541	
6. 1	31·472	31·529	31·500	31·538
6. 21	31·514	31·556	31·535	
7. 21	31·581	31·530	31·555	
9. 1	31·583	31·528	31·555	
10. 21	31·612	31·508	31·560	
12. 2	31·590	31·533	31·561	
12. 21	31·622	31·490	31·556	

Day and Hour of Observation.	Mean Reading for Coincidence with North Collimator.	Mean Reading for Coincidence with South Collimator.	Mean of Readings for North and South Collimators.	Adopted Reading for Line of Collimation.
1867. d h	r	r	r	r
Nov. 14. 1	31·540	31·487	(31·513)	31·554
14. 21	31·588	31·514	31·551	
15. 23	31·573	31·515	31·544	
17. 21	31·608	31·505	31·556	
19. 1	31·627	31·477	31·552	
20. 1	31·629	31·492	31·560	31·551
21. 1	31·619	31·484	31·552	
22. 1	31·625	31·478	31·552	
22. 21	31·601	31·464	31·533	
24. 22	31·703	31·427	31·565	
25. 22	31·695	31·438	31·567	
27. 2	31·682	31·436	31·559	31·559
27. 21	31·608	31·505	31·557	
28. 22	31·697	31·411	31·554	
29. 23	31·714	31·395	31·555	
Dec. 1. 23	31·915	31·459	(31·687)	
2. 22	31·643	31·435	31·539	
3. 23	31·675	31·412	31·543	
4. 23	31·677	31·388	31·533	31·542
5. 22	31·709	31·396	31·553	
6. 22	31·702	31·381	31·542	
9. 1	31·748	31·350	31·549	
10. 0	31·735	31·344	31·539	
12. 2	31·715	31·335	31·525	31·540
13. 1	31·752	31·350	31·551	
13. 22	31·712	31·363	31·538	
15. 23	31·706	31·392	31·549	
16. 23	31·674	31·466	31·570	31·550
17. 23	31·652	31·399	31·525	
21. 2	32·066	31·047	31·556	
22. 22	32·145	31·040	31·593	
24. 0	32·107	31·041	31·574	31·580
26. 2	32·115	31·034	31·574	
26. 22	32·083	31·016	31·549	31·554
27. 23	32·124	30·994	31·559	
30. 0	32·175	30·985	31·580	
30. 22	32·152	31·002	31·577	31·570

One revolution of Transit Micrometer = 14″·78.

November 14ᵈ. 1ʰ. The images of the wires badly defined; the instrument covered with moisture.
December 17ᵈ. 23ʰ. After this observation, the wire of the South Collimator was found broken, and was renewed.

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MEAN READINGS of the TRANSIT MICROMETER for Coincidence of the Direct and Reflected IMAGES of the CENTRAL TRANSIT WIRE of the TRANSIT-CIRCLE, and Determination of the ERROR of LEVEL of the AXIS of REVOLUTION.

(*Each Number is usually the Mean of Six Observations.*)

Day and Hour of Observation.	Mean Reading of Transit Microm. for Coincidence of Images.	Adopted Reading for Line of Collimation.	Excess of Reading of Line of Collimation above Reading for Coincidence; or Error of Level.	Error of Level expressed in Arc.	Adopted Error of Level of Axis of Revolution.	Day and Hour of Observation.	Mean Reading of Transit Microm. for Coincidence of Images.	Adopted Reading for Line of Collimation.	Excess of Reading of Line of Collimation above Reading for Coincidence; or Error of Level.	Error of Level expressed in Arc.	Adopted Error of Level of Axis of Revolution.
1867. d h	r	r	r	"	"	1867. d h	r	r	r	"	"
Jan. 1. 9	30·372	31·240	+0·868	+12·82	+13·04	Mar. 5. 10	30·541	31·255	+0·714	+10·56	
2. 10	30·342		+0·898	+13·27		6. 8	30·544		+0·711	+10·51	+10·50
3. 6	30·381		+0·859	+12·69		7. 8	30·549		+0·706	+10·44	
4. 6	30·345		+0·895	+13·22	+13·22	8. 9	30·503		+0·752	+11·12	+11·12
5. 6	30·401		+0·839	+12·39	+12·39	11. 5	30·589	31·278	+0·689	+10·18	
8. 6	30·692	31·257	+0·565	+ 8·35	+8·35	13. 7	30·544		+0·734	+10·85	
9. 6	30·600		+0·657	+ 9·71	+9·71	15. 7	30·570		+0·708	+10·47	+10·68
10. 8	30·444		+0·813	+12·01		16. 10	30·552		+0·726	+10·73	
11. 14	30·417		+0·840	+12·41	+12·41	18. 10	30·513	31·240	+0·727	+10·75	
14. 8	30·399	31·227	+0·828	+12·23	+12·25	20. 7	30·589		+0·651	+ 9·62	+9·62
15. 8	30·396		+0·831	+12·27		21. 9	30·589		+0·651	+ 9·62	
16. 8	30·454		+0·773	+11·42		25. 6	30·740	31·279	+0·539	+ 7·96	
17. 9	30·465		+0·762	+11·27	+11·36	26. 11	30·762		+0·517	+ 7·64	+7·68
18. 7	30·455		+0·772	+11·41		27. 7	30·775		+0·504	+ 7·45	
19. 7	30·459		+0·768	+11·35		28. 7	30·703		+0·576	+ 8·51	+8·51
21. 13	30·481	31·279	+0·798	+11·80		29. 8	30·652		+0·627	+ 9·27	
22. 7	30·474		+0·805	+11·89		30. 8	30·689		+0·590	+ 8·72	+9·00
24. 5	30·771		+0·508	+ 7·51	+7·51						
25. 6	30·717		+0·562	+ 8·31	+8·31	April 1. 8	30·709	31·271	+0·562	+ 8·31	+8·31
28. 6	30·734	31·264	+0·530	+ 7·83	+7·83	2. 9	30·788		+0·483	+ 7·13	
29. 12	30·673		+0·591	+ 8·73	+8·73	3. 10	30·788		+0·483	+ 7·13	
30. 7	30·699		+0·565	+ 8·35		4. 8	30·768		+0·503	+ 7·43	+7·22
31. 7	30·634		+0·630	+ 9·31		5. 8	30·798		+0·473	+ 6·98	
						6. 10	30·768		+0·503	+ 7·43	
Feb. 1. 5	30·655		+0·609	+ 9·00	+9·15	8. 13	30·703	31·276	+0·573	+ 8·46	
2. 8	30·646		+0·618	+ 9·14		9. 12	30·678		+0·598	+ 8·84	+8·62
4. 7	30·640	31·267	+0·627	+ 9·27	+9·27	10. 7	30·696		+0·580	+ 8·57	
6. 6	30·590		+0·677	+10·00	+10·00	11. 7	30·637		+0·639	+ 9·44	
7. 12	30·520		+0·747	+11·04	+11·04	12. 9	30·660		+0·616	+ 9·11	+9·21
8. 7	30·586		+0·681	+10·06	+10·06	13. 8	30·661		+0·615	+ 9·09	
9. 7	30·636		+0·631	+ 9·32	+9·32	15. 8	30·699	31·254	+0·555	+ 8·20	
11. 7	30·610	31·269	+0·659	+ 9·74	+9·74	16. 11	30·696		+0·558	+ 8·25	+8·34
12. 6	30·616		+0·653	+ 9·65		17. 11	30·674		+0·580	+ 8·57	
13. 7	30·637		+0·632	+ 9·34		18. 12	30·780		+0·474	+ 7·00	+7·00
14. 7	30·615		+0·654	+ 9·67	+9·67	20. 9	30·831		+0·423	+ 6·25	+6·25
15. 7	30·631		+0·638	+ 9·43	+9·43	22. 11	30·734	31·305	+0·571	+ 8·43	+8·43
16. 7	30·657		+0·612	+ 9·05	+9·05	23. 11	30·780		+0·525	+ 7·76	+7·76
18. 11	30·628	31·243	+0·615	+ 9·09		24. 7	30·826		+0·479	+ 7·07	+7·07
19. 6	30·645		+0·598	+ 8·84		25. 8	30·736	31·247	+0·511	+ 7·55	
20. 9	30·652		+0·591	+ 8·73		26. 8	30·654		+0·593	+ 8·76	+8·76
21. 8	30·652		+0·591	+ 8·73	+8·75	27. 13	30·665	31·208	+0·543	+ 8·02	+8·02
22. 8	30·653		+0·590	+ 8·72		29. 8	30·657	31·208	+0·551	+ 8·14	+8·14
23. 8	30·646		+0·597	+ 8·82		30. 9	30·709		+0·499	+ 7·37	
25. 11	30·587	31·261	+0·674	+ 9·96	+10·06						+7·40
26. 8	30·573		+0·688	+10·17		May 1. 8	30·706		+0·502	+ 7·42	
27. 7	30·533		+0·728	+10·76		2. 14	30·725		+0·483	+ 7·13	+7·13
28. 11	30·514		+0·747	+11·04		3. 6	30·725		+0·483	+ 7·13	
						4. 9	30·754		+0·454	+ 6·71	+6·71
Mar. 1. 8	30·513		+0·748	+11·06	+11·11	6. 12	30·916	31·222	+0·306	+ 4·52	
2. 7	30·502		+0·759	+11·22		7. 9	30·918		+0·304	+ 4·49	
4. 7	30·512	31·255	+0·743	+10·98	+10·98	8. 12	30·930		+0·292	+ 4·32	+4·48

One revolution of Transit Micrometer = 14″·78.

January 1 to 5. The adopted reading for the line of collimation is that determined on 1866, December 23–29.
January 22[d]. The reflected image scarcely visible.
February 6. The mercury tremulous on account of high wind.
February 26, March 8. The reflected image very faint.
March 2. The mercury very tremulous.
March 25. The contacts very unsatisfactory, and made with great difficulty.

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TRANSITS OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF APPARENT RIGHT ASCENSION,

MONTH and DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at 0^h Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Dec. 2	1	Piazzi III. 23 ...	HC	54·9	58·6	1·8	5·2	11·6	..	..	25·1	28·4	3. 10. 11·72	+0·43	12·63			17·26	3. 10. 29·90	— 4·69
	2	η Tauri.....	HC	6·1	..	12·1	15·3	21·3	27·2	30·4	..	36·2	3. 39. 21·20	(+11·93)	21·94	39·28	17·34	[0·07]	3. 39. 39·21	— 4·34
	3	ψ Tauri	HC	18·0	21·4	24·4	27·4	33·9	40·2	43·3	46·5	49·6	3. 58. 33·83	[−2·18]	34·65				3. 58. 51·92	— 4·57
	4	τ Tauri.....	HC	..	..	..	..	23·0	..	31·4	..	36·8	4. 16. 22·90		23·43				4. 16. 40·70	— 3·96
	5	ε Tauri.....	HC	22·8	25·6	28·7	..	37·4	..	46·2	49·2	52·0	4. 20. 37·38		38·05	55·39	17·34		4. 20. 55·32	— 4·24
	6	89 Tauri	HC	4·6	7·4	10·2	13·2	18·9	24·7	27·8	30·6	33·4	4. 30. 18·94		19·56				4. 30. 36·83	— 4·16
	7	Polaris S.P. (E&E)	C	..	..	0·0	55·5	47·0	32·0	..	18·0	..	13. 11. 45·42	[−4·22]	11·90	28·86	16·96	17·35	1. 11. 29·32	−71·50
	8	Spica	C	41·3	44·2	47·0	49·8	55·4	1·1	3·8	6·6	9·4	13. 17. 55·37		55·54	13·06	17·52	[0·12]	13. 18. 12·96	— 1·75
																			16. 37. 14·52	
Dec. 3	9	⊙ 1 L.	C	31·8	34·8	37·8	40·7	46·6	52·8	55·6	58·6	1·6	16. 35. 46·67		57·09				16. 38. 7·53	
	10	⊙ 2 L.....	C	52·6	55·7	58·6	1·5	7·4	13·7	16·6	19·5	22·5	16. 38. 7·53		59·77				21. 59. 17·23	— 2·10
	11	ι Aquarii	C	45·4	48·2	51·2	54·0	59·5	5·4	8·4	11·2	14·0	21. 58. 59·67		54·06				22. 20. 14·41	
	12	☽ 1 L.....	C	..	..	..	..	53·8	..	..	..	8·4	22. 18. 53·89		16·67	34·27	17·60	17·53†	....	
	13	α Andromedæ ...	D	0·2	3·4	6·5	9·7	16·0	22·3	25·4	28·5	31·6	0. 1. 15·92		48·27	5·78	17·51	17·47	0. 56. 5·75	— 3·22
	14	ε Piscium	C	34·0	36·8	39·5	42·3	47·8	53·4	56·3	59·0	1·9	0. 55. 47·86		11·51	28·49	16·98		1. 11. 28·99	−71·13
	15	Polaris....(E&E)	C	..	5·0	57·5	51·0	37·0	..	..	..	..	1. 10. 37·42		12·64				1. 21. 30·12	— 7·31
	16	A Cassiopeiæ....	C	30·4	38·5	46·4	54·4	10·2	..	..	..	..	1. 21. 10·10		8·32	25·68	17·36		1. 24. 25·80	— 3·52
	17	η Piscium	C	53·6	56·5	59·2	2·1	7·8	13·5	16·4	19·3	22·0	1. 24. 7·79		16·67	34·04	17·37		1. 34. 34·15	— 3·38
	18	ν Piscium	C	2·4	5·3	8·0	10·8	16·3	21·8	24·7	27·4	30·2	1. 34. 16·29		0·17				13. 42. 17·65	+ 0·21
	19	η Ursæ Maj. S.P.	C	39·4	43·6	47·7	52·3	1·0	..	..	..	..	1. 42. 0·89		4·12	21·57	17·45	17·53†	....	
	20	β Arietis	D	48·7	51·8	54·7	57·6	3·5	9·4	12·4	15·4	18·3	1. 47. 3·51		49·83			17·47	1. 48. 7·31	— 4·35
	21	Bradley 253.....	C	..	..	..	..	48·9	55·8	59·3	2·8	6·1	1. 47. 48·90		2·70				1. 48. 20·18	— 4·35
	22	56 Andromedæ ..	C	..	..	..	..	..	..	..	15·6	19·0	1. 48. 1·77		15·27				2. 0. 32·75	— 4·48
	23	58 Andromedæ ..	C	..	..	..	..	..	..	..	..	..	2. 0. 14·34		26·37				2. 4. 43·85	— 4·18
	24	6 Trianguli	C	57·0	0·6	3·9	7·5	14·3	21·4	24·8	28·3	31·6	2. 4. 25·60		51·64				2. 8. 9·12	— 4·32
	25	7 Trianguli	C	9·6	12·9	16·1	19·3	25·6	32·0	35·2	38·4	41·6	2. 7. 50·81		21·63				2. 14. 39·11	— 4·74
	26	Piazzi II. 61	C	34·4	37·7	41·0	44·3	50·8	57·4	0·7	4·0	7·3	2. 14. 20·61		21·16				4. 47. 38·65	— 4·00
	27	π^4 Orionis.....	C	2·2	6·1	9·6	13·4	20·6	28·0	31·7	35·2	39·0	4. 47. 20·70		1·56				4. 50. 19·05	— 5·04
	28	4 Aurigæ	C	6·7	9·6	12·3	15·1	20·6	26·4	29·1	31·9	34·8	4. 50. 0·61		35·79	53·24	17·45		4. 59. 53·29	— 3·39
	29	ε Leporis	C	..	46·7	50·2	53·7	0·6	7·6	11·1	14·7	..	4. 59. 35·81		7·50				5. 4. 25·00	— 5·06
	30	μ Aurigæ	C	20·8	24·0	26·9	29·9	35·7	41·8	44·8	47·8	50·9	5. 4. 6·53		14·53				5. 9. 32·03	— 4·79
	31	16 Aurigæ	C	48·8	52·6	56·0	59·4	6·6	13·6	17·2	20·7	24·2	5. 9. 13·69		24·97				5. 10. 42·47	— 4·81
	32	18 Aurigæ	C	57·2	0·6	3·8	7·0	13·6	20·4	23·7	27·0	30·3	5. 10. 24·11		11·34				5. 18. 28·84	— 4·16
	33	113 Tauri	C	..	..	..	17·5	24·1	30·8	34·2	37·4	40·8	5. 18. 10·79		53·88				5. 20. 11·38	— 4·13
	34	116 Tauri	C	56·4	59·2	2·1	5·0	10·8	16·7	19·5	22·4	25·2	5. 19. 53·34		58·92	16·49	17·57		5. 25. 16·42	— 3·74
	35	δ Orionis	C	39·0	42·0	44·8	47·6	53·3	59·2	1·9	4·8	7·7	5. 24. 58·61		0·22				5. 37. 17·72	— 4·11
	36	128 Tauri.....	C	44·8	47·5	50·3	53·1	58·6	4·2	7·1	9·8	12·4	5. 36. 59·67		41·61				5. 42. 59·11	— 4·05
	37	135 Tauri.....	C	45·2	48·2	51·2	54·0	59·6	5·6	8·3	11·2	14·0	5. 42. 41·09		26·13				6. 34. 43·63	— 4·00
	38	26 Geminorum ..	C	26·8	29·7	32·6	35·4	41·2	46·8	49·8	52·4	55·3	6. 34. 25·55		56·60				6. 37. 14·10	— 4·99
	39	56 Aurigæ	C	11·1	14·0	16·9	19·7	25·5	31·4	34·3	37·1	40·2	6. 36. 55·50		39·57				6. 43. 57·07	— 4·70
	40	59 Aurigæ	C	36·3	40·4	44·0	47·9	55·5	3·3	7·0	10·8	14·7	6. 43. 38·59		37·20				6. 44. 54·70	— 4·68
	41	61 Aurigæ	C	21·0	24·4	28·0	31·5	38·6	45·6	49·4	52·8	56·4	6. 44. 36·23		46·49	4·06	17·57		6. 48. 3·99	— 3·42
	42	θ Canis Majoris ..	C	..	..	..	..	..	43·2	47·0	50·5	54·0	6. 47. 46·35		6·72				6. 52. 24·22	
	43	Uranus	C	32·2	35·2	37·9	40·8	46·3	52·0	54·8	57·7	0·5	6. 52. 6·05							
				51·0	54·1	57·1	0·0	6·1	12·2	15·2	17·9	21·1						17·62		
Dec. 4	44	Jupiter 1 L.....	JC	8·5	..	14·1	..	22·6	..	31·2	..	36·8	22. 11. 22·62	(+11·04)	24·04			[−0·12]	22. 11. 41·55	
	45	Jupiter 2 L.....	JC	11·1	..	16·8	..	25·3	..	33·8	..	39·4	22. 11. 25·26	[−4·47]	21·06	38·56	17·50	..	22. 23. 38·57	— 2·20
	46	σ Aquarii.....	JC	6·7	9·8	12·5	15·4	20·9	26·7	29·5	32·3	35·0	22. 23. 20·95		40·57				22. 29. 58·08	— 2·47
	47	Groombridge 3834	JC	..	..	..	..	37·2	59·7	10·6	21·6	32·7	22. 29. 37·22							

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being generally P, Q, R, S, T, U, V, W, X, reversed for stars S.P. Occasionally the observations are made by eye and ear (E & E); the wires then employed are N, O, P, T, X, Y, Z, reversed for stars S.P.

Reading of Transit-Micrometer, $31^{r\cdot}\cdot 500$.
Correction for passage of Semidiameter, No. 12, $+62^{s\cdot}\cdot 88$.
† This clock-error has been used in the reduction of the observations made with the Altazimuth.
December 2, Polaris S.P., to December 3. The azimuthal error by Polaris S.P. and Polaris, allowing $0^{s\cdot}\cdot 41$ for clock-rate and change of R.A.
December 4 to 6. The azimuthal error used is the mean of those ($-4''\cdot 62$ and $-4''\cdot 32$) determined by tabular places of ε Piscium and Polaris on December 4, and of δ Ursæ Minoris S.P. and Cephei 51 on December 6, allowing in the latter case $-0^{s\cdot}\cdot 01$ for clock-rate.

5. Very tremulous.
12. Immediately after the observation the Moon was clouded; no observation of N.P.D. could be made. Correction to R.A. on true Meridian, $+0^{s\cdot}\cdot 01$.
15. Exceedingly faint from clouds.
28. Double; the southern and larger star was observed.

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Date 1867	No. for Reference	NAME OF OBJECT.	Observer.	Seconds of Transit over the Wires. I.	II.	III	IV.	V.	VI.	VII.	VIII.	IX.	Concluded Transit over the Center Wire.	Error of Collimation. (Level). [Azimuth].	Seconds of Transit Corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted Clock Slow at ob Sidereal and [Losing Rate].	Apparent R.A. of Center from the Observation.	Correction to Mean R.A. 1867, Jan. 1.
				s	s	s	s	s	s	s	s	s	h m s	"	s	s	s	s	h m s	s
Dec. 4	1	ζ Pegasi	JC	..	23·1	25·7	..	34·2	39·8	42·7	45·4	48·3	22. 34. 34·18	+0·43	34·58	52·05	17·47	17·62	22. 34. 52·09	— 2·34
	2	λ Aquarii	JC	11·2	..	16·8	19·6	25·2	30·8	33·5	..	39·0	22. 45. 25·14	(+11·54)	25·29	42·71	17·42	[−0·12]	22. 45. 42·80	— 2·33
	3	81 Aquarii	JC	59·4	2·4	5·3	8·0	13·5	19·1	21·9	24·7	27·5	22. 54. 13·51	[−4·47]	13·67				22. 54. 31·18	— 2·38
	4	☽ 1 L.	JC	27·0	29·8	32·6	35·5	41·0	46·9	49·8	52·4	55·4	23. 7. 41·13		41·30				23. 9. 1·85	
	5	γ Piscium	E	46·7	49·7	52·4	55·3	0·9	6·3	9·0	11·8	14·4	23. 10. 0·70		0·99	18·79	17·80	17·90†	....	
	6	κ Piscium	JC	37·8	40·6	..	46·1	51·5	57·3	..	2·7	5·6	23. 19. 51·63		51·90	9·43	17·53	17·62	23. 20. 9·40	— 2·59
	7	16 Piscium	JC	7·0	9·9	12·8	15·4	20·9	26·5	29·1	32·0	34·8	23. 29. 20·91		21·19				23. 29. 38·69	— 2·63
	8	ι Andromedæ	JC	..	..	..	..	22·0	29·5	33·3	36·9	40·7	23. 31. 21·93		22·91				23. 31. 40·41	— 3·15
	9	ι Piscium	E	37·4	40·1	42·9	45·6	51·1	56·8	59·8	2·3	5·1	23. 32. 51·21		51·54	9·30	17·76	17·90†	....	
	10	δ Sculptoris	JC	28·9	..	35·3	38·4	44·6	51·1	54·3	..	0·6	23. 41. 44·71		44·55	2·03	17·48	17·62	23. 42. 2·05	— 2·45
	11	γ Ursæ Maj. S.P.	JC	..	14·8	19·6	24·3	34·0	43·3	48·2	52·9	..	23. 46. 33·80		32·44				11. 46. 49·94	— 1·14
	12	12 Ceti	JC	..	49·1	51·8	54·7	0·2	5·8	8·8	11·4	..	0. 23. 0·22		0·42	17·92	17·50	17·50	0. 23. 17·92	— 2·87
	13	κ Draconis S.P.	JC	..	..	5·4	13·7	30·6	47·2	55·4	..	..	0. 27. 30·55		28·51				12. 27. 46·01	+ 1·26
	14	α Cassiopeiæ	JC	19·5	24·7	29·4	34·3	44·0	54·1	59·0	..	..	0. 32. 44·13		45·55				0. 33. 3·05	— 4·54
	15	Piazzi 0. 216	JC	0·0	2·9	5·5	8·4	13·9	19·4	22·2	25·0	27·7	0. 46. 13·86		14·17				0. 46. 31·67	— 3·10
	16	Neptune	JC	..	35·1	38·0	40·7	46·1	51·8	54·5	57·3	..	0. 47. 46·17		46·48				0. 48. 3·98	
	17	ε Piscium	JC	34·0	36·9	39·6	42·4	47·9	53·5	56·2	58·8	1·8	0. 55. 47·87		48·23	5·77	17·54		0. 56. 5·73	— 3·21
	18	Polaris ....(E&E)	JC	10·0	5·0	57·5	50·5	35·0	..	..	..	..	1. 10. 37·42		9·99	27·77	17·78		....	
	19	Eurynome	JC	..	14·9	17·6	20·6	26·1	31·8	34·8	37·6	..	3. 18. 26·16		26·60				3. 18. 44·08	
	20	f Tauri	JC	3·8	6·6	9·6	12·3	18·0	23·6	26·6	29·4	32·2	3. 23. 17·98		18·41	35·98	17·57		3. 23. 35·89	— 3·97
	21	Piazzi III. 104	JC	58·1	1·6	5·0	8·6	15·4	22·4	26·0	29·3	32·8	3. 32. 15·43		16·29				3. 32. 33·77	— 4·95
	22	ν Persei	JC	..	..	..	49·4	56·8	4·4	..	11·9	..	3. 35. 56·86		57·83				3. 36. 15·31	— 5·23
	23	Piazzi III. 178	JC	8·5	14·6	20·1	25·8	37·1	48·3	54·3	59·8	5·5	3. 45. 37·05		38·72				3. 45. 56·20	— 7·23
	24	A^3 Tauri	JC	..	..	5·4	..	14·3	20·3	23·1	26·2	..	3. 57. 14·26		14·83				3. 57. 32·31	— 4·33
	25	Piazzi III. 249	JC	54·3	57·2	0·1	3·0	8·7	14·6	17·4	20·4	23·2	4. 0. 8·73		9·22				4. 0. 26·70	— 4·17
	26	f Persei	JC	..	..	..	..	37·4	44·7	48·3	52·0	55·4	4. 5. 37·39		38·31				4. 5. 55·79	— 5·18
	27	Groombridge 804	JC	..	..	..	..	42·7	50·5	54·2	57·8	1·5	4. 8. 42·91		43·87				4. 9. 1·35	— 5·29
	28	h Tauri	JC	0·3	..	6·1	8·9	14·6	20·4	23·2	..	28·9	4. 12. 14·61		15·06				4. 12. 32·54	— 4·10
	29	r Tauri	JC	8·9	11·8	14·6	17·4	22·8	28·6	31·4	34·2	37·0	4. 16. 22·94		23·33				4. 16. 40·81	— 3·97
	30	Aldebaran	JC	..	52·3	55·0	57·9	3·6	9·5	12·5	15·2	..	4. 28. 3·67		4·16	21·64	17·48		4. 28. 21·64	— 4·17
Dec. 5	31	☉ 2 L.	P	34·2	37·1	40·2	43·2	..	..	..	..	..	16. 46. 49·13		49·08			17·78	16. 45. 56·03	
	32	α Lyræ	P	..	53·8	57·2	1·0	7·8	15·1	18·6	22·0	..	18. 32. 7·88		8·78	26·23	17·45	[−0·40]	18. 32. 26·25	— 0·10
	33	ε Pegasi	C	9·4	12·3	15·1	18·0	23·5	29·2	32·0	34·9	37·5	21. 37. 23·52		23·91	41·19	17·28	17·64†	....	
	34	γ Ceti	P	56·7	59·7	..	..	10·5	16·2	18·8	21·7	24·4	2. 36. 10·56		10·86	28·22	17·36	17·38	2. 36. 28·20	— 3·57
	35	ζ Persei	P	54·9	59·1	3·0	7·2	15·3	23·6	27·6	31·7	35·6	3. 33. 15·29		16·40				3. 33. 33·72	— 5·61
	36	γ Tauri	P	..	..	..	..	21·6	27·5	30·4	33·6	36·4	3. 39. 21·41		22·01	39·30	17·29		3. 39. 39·33	— 4·36
	37	Groombridge 779	P	..	..	..	..	..	32·2	48·5	5·7	22·3	4. 3. 58·31		3·30				4. 4. 20·61	—17·67
	38	Piazzi IV. 31	P	32·2	..	39·7	43·2	..	..	1·8	5·5	9·2	4. 10. 50·67		51·62				4. 11. 8·93	— 5·28
	39	χ Tauri	P	0·6	..	7·0	..	16·1	22·3	25·4	28·4	31·4	4. 14. 16·09		16·71				4. 14. 34·02	— 4·48
	40	κ^2 Tauri	P	1·3	..	..	10·4	16·3	22·2	25·3	28·3	31·2	4. 17. 16·28		16·85				4. 17. 34·16	— 4·37
	41	91 Tauri	P	30·8	33·7	36·6	..	..	50·9	..	56·6	59·6	4. 20. 45·15		45·63				4. 21. 3·08	— 4·16
	42	ε Persei	P	..	1·3	5·0	8·7	15·8	23·2	26·9	30·8	..	4. 27. 15·91		16·85				4. 27. 34·16	— 5·26
	43	Aldebaran	P	49·5	52·4	55·2	58·2	3·8	9·8	12·7	15·5	18·2	4. 28. 3·89		4·38	21·65	17·27		4. 28. 21·69	— 4·18
	44	Bradley 635	P	..	..	..	..	..	15·5	18·4	21·0	..	4. 29. 9·95		10·16				4. 29. 27·47	— 3·69
	45	4 Camelopardali	P	..	..	29·4	34·1	44·2	54·2	59·3	..	..	4. 36. 44·19		45·64				4. 37. 2·94	— 6·70
	46	Piazzi IV. 179	P	2·7	5·8	8·7	11·6	17·4	23·3	26·3	29·2	32·1	4. 38. 17·42		17·94				4. 38. 35·24	— 4·26
	47	5 Camelopardali	P	34·9	40·0	44·7	49·5	59·1	9·0	13·6	18·7	23·3	4. 43. 59·15		0·54				4. 44. 17·84	— 6·51
	48	e^1 Orionis	P	..	9·6	12·4	15·3	21·0	26·6	29·4	32·2	..	4. 47. 20·89		21·29				4. 47. 38·59	— 4·02

Polaris and other stars very near the pole are observed by eye and ear over the wires P, Q, R, S, T, U, V, W, X.
The intervals of the Wires of both systems are given in the Introduction.

Reading of Transit-Micrometer, 31r·500.
Corrections for passage of Semidiameter, Nos. 4 and 31, +63s·04: and −70s·56.
† These clock-errors have been used in the reduction of the observations made with the Altazimuth.

3. The time at the 6th wire has also been used for the 3rd wire of an Altazimuth observation, ε Pegasi, Face Left.
4. Correction to R.A. on true Meridian, +0s·01.
30. Cloudy.
31. Extremely cloudy; not visible at the passage over the other wires.
34. Observed over the wires illuminated.
47. Very cloudy.
48. Very tremulous.

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ROYAL OBSERVATORY, GREENWICH.

APPARENT RIGHT ASCENSIONS

OF

POLARIS,

AND

MEAN RIGHT ASCENSIONS OF STARS,

DEDUCED FROM EACH DAY'S OBSERVATION,

IN THE YEAR

1867.

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ι^2 Piscium.	
	h m s
Sept. 16	0. 42. 45·20
20	45·19

20 Ceti.	
Sept. 14	0. 46. 12·62
15	12·70

Piazzi 0. 216.	
Oct. 19	0. 46. 28·53
26	28·63
Nov. 2	28·58
5	28·68
7	28·72
8	28·61
11	28·74
13	28·52
21	28·64
23	28·62
28	28·67
Dec. 4	28·57
7	28·63
9	28·86
12	28·63
18	28·68
24	28·66

66 Piscium.	
Sept. 6	0. 47. 32·88
24	32·93

μ Andromedæ.	
Sept. 10	0. 49. 22·72
Oct. 1	22·73
Nov. 1	22·74
Dec. 12	22·80
18	22·67

B. F. 92.	
Sept. 30	0. 50. 5·53
Oct. 5	5·50
8	5·56
19	5·43
Nov. 8	5·56

h Piscium.	
	h m s
Aug. 20	0. 50. 38·57

Groombridge 215.	
Nov. 19	0. 55. 19·98

ϵ Piscium.	
Aug. 20	0. 56. 2·47
Oct. 4	2·50
5	2·43
26	2·51
Nov. 2	2·42
5	2·45
6	2·46
8	2·49
13	2·45
21	2·51
27	2·45
28	2·50
Dec. 3	2·53
4	2·52
9	2·55
24	2·54

Bradley 114.	
Oct. 1	0. 57. 20·07
26	19·96

27 Ceti.	
Jan. 12	0. 58. 57·17
Aug. 27	57·00

78 Piscium.	
Jan. 25	1. 0. 40·15
Sept. 24	40·07
Oct. 4	40·19
8	40·03

ψ^2 Piscium.	
Oct. 1	1. 0. 49·25

Bradley 117.	
	h m s
Oct. 26	1. 0. 53·63
Nov. 13	53·79

29 Ceti.	
Aug. 27	1. 1. 8·19

31 Cassiopeiæ.	
May 27	1. 1. 41·71
28	41·42
Nov. 13	41·78

η Ceti.	
Nov. 6	1. 1. 53·88

β Andromedæ.	
Feb. 7	1. 2. 17·51
May 2	17·54
3	17·61
8	17·56
June 9	17·58
11	17·58
Sept. 25	17·53
28	17·47
Nov. 23	17·52
Dec. 6	17·60
9	17·57
12	17·55
18	17·48
24	17·54

44 Andromedæ.	
Oct. 4	1. 2. 46·29
Nov. 5	46·20
7	46·38
8	46·12
19	46·24

32 Cassiopeiæ.	
	h m s
May 27	1. 3. 3·40
28	3·04
Nov. 27	3·62

45 Andromedæ.	
Aug. 27	1. 3. 42·52
Nov. 6	42·40

33 Ceti.	
Nov. 1	1. 3. 42·93
2	42·87
21	42·98
23	43·02
28	42·99

Bradley 137.	
Oct. 26	1. 4. 51·97
Nov. 28	52·05

35 Ceti.	
Oct. 8	1. 5. 41·49
10	41·47
19	41·47

36 Ceti.	
Oct. 8	1. 6. 6·12
19	5·95
Nov. 13	5·99

ϕ Piscium.	
Aug. 20	1. 6. 31·87
Nov. 7	32·04
8	31·94
16	31·92

ζ^1 Piscium.	
Jan. 12	1. 6. 47·08
13	47·12
Dec. 6	47·08
7	47·04

ζ^2 Piscium.	
	h m s
Dec. 7	1. 6. 48·52

87 Piscium.	
Aug. 27	1. 7. 3·77
Oct. 1	3·93
Nov. 5	3·86

38 Ceti.	
Nov. 2	1. 8. 1·64

41 Ceti.	
Oct. 3	1. 11. 1·39

υ Piscium.	
Oct. 28	1. 12. 9·73

Bradley 166.	
Nov. 21	1. 12. 10·04
28	10·20

35 Cassiopeiæ (1st Star).	
May 27	1. 12. 12·56
Dec. 24	12·73

35 Cassiopeiæ (2d Star).	
May 27	1. 12. 13·99
Dec. 9	14·28
24	14·05

l Piscium.	
Sept. 24	1. 13. 46·40
Oct. 4	46·45

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ξ Andromedæ.

	h m s
Dec. 18	1. 14. 31·11

47 Andromedæ.

Jan. 12	1. 16. 4·56
Aug. 20	4·57
Oct. 3	4·60
Nov. 7	4·66
27	4·68

92 Piscium.

Jan. 12	1. 16. 42·20

θ Ceti.

Sept. 6	1. 17. 22·46
27	22·55
Oct. 4	22·54
8	22·60
19	22·50
25	22·52
Nov. 1	22·49

A Cassiopeiæ.

Oct. 24	1. 21. 22·75
Nov. 27	22·68
28	22·85
Dec. 3	22·81
12	22·65
18	22·61

97 Piscium.

Sept. 24	1. 22. 42·21
Oct. 2	42·37

ω Piscium.

Dec. 7	1. 23. 13·06

η Piscium.

	h m s
Jan. 25	1. 24. 22·20
Aug. 20	22·19
Sept. 24	22·01
Oct. 3	22·20
10	22·12
25	22·14
Nov. 7	22·27
13	22·09
16	22·17
19	22·16
28	22·19
Dec. 3	22·28

Piazzi I. 104.

Aug. 20	1. 26. 36·41
Oct. 3	36·43
10	36·31
24	36·32
28	36·37

40 Cassiopeiæ.

Nov. 16	1. 27. 56·74
19	56·75

ω Cassiopeiæ.

Nov. 27	1. 32. 31·67

τ Andromedæ.

Nov. 5	1. 32. 44·30
13	44·40
28	44·39
Dec. 24	44·34

* N.P.D. 55°. 26′.

Oct. 28	1. 34. 22·79
Nov. 2	22·78
5	22·62
7	22·85
8	22·70

ν Piscium.

	h m s
Aug. 20	1. 34. 30·67
Oct. 2	30·70
4	30·74
Nov. 1	30·63
16	30·69
19	30·71
Dec. 3	30·77
7	30·71
24	30·68

ο Piscium.

Aug. 20	1. 38. 22·29
Sept. 15	22·33
Oct. 24	22·37
25	22·29
Nov. 1	22·20
16	22·38
19	22·32
27	22·40
28	22·36

Piazzi I. 170.

Oct. 24	1. 40. 48·23
Nov. 5	48·49
8	48·50
13	48·57
19	48·47

1 Arietis (1st Star).

Aug. 20	1. 42. 47·84
Nov. 2	47·77
8	47·96
13	47·83

1 Arietis (2nd Star).

Aug. 20	1. 42. 47·87
Oct. 24	47·93
Nov. 13	47·99

55 Andromedæ.

Oct. 28	1. 45. 19·25
Nov. 8	19·22

46 Cassiopeiæ.

	h m s
Nov. 16	1. 45. 42·56

β Arietis.

July 24	1. 47. 17·85
Aug. 20	17·79
Oct. 25	17·85
Nov. 5	17·76
13	17·87
16	17·76
Dec. 2	17·78
6	17·86
12	17·77

Bradley 253.

Nov. 27	1. 48. 2·95
Dec. 3	2·96

56 Andromedæ.

Nov. 27	1. 48. 15·87
Dec. 3	15·83

50 Cassiopeiæ.

Nov. 2	1. 52. 8·04
16	8·05
27	8·31
Dec. 7	7·94
12	8·10
18	8·11

49 Cassiopeiæ.

June 1	1. 52. 53·45

51 Cassiopeiæ.

June 11	1. 53. 58·57

α Piscium.

	h m s
Jan. 13	1. 55. 10·19
14	9·97

ι Trianguli.

Nov. 13	1. 55. 12·19
19	12·14

γ¹ Andromedæ.

Nov. 16	1. 55. 44·57
27	44·80

γ² Andromedæ.

Nov. 27	1. 55. 45·68

54 Cassiopeiæ.

May 27	1. 57. 42·60
29	42·27
June 1	42·17

κ Arietis.

Jan. 14	1. 59. 7·85
Aug. 20	7·65
Nov. 8	7·60
Dec. 2	7·60

Bradley 284.

Nov. 27	1. 59. 10·64
Dec. 9	10·60

11 Arietis.

Nov. 13	1. 59. 17·22

α Arietis.

Jan. 1	1. 59. 40·95
May 2	40·82
31	40·89

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ψ Tauri.	h m s
Nov. 28	3. 58. 47·43
Dec. 2	47·35

Piazzi III. 249.	
Jan. 25	4. 0. 22·55
28	22·65
Feb. 6	22·53
Dec. 4	22·53
9	22·48

p Tauri.	
Nov. 13	4. 2. 44·07
28	44·16

Groombridge 779.	
Dec. 5	4. 4. 2·94

o^1 Eridani.	
Jan. 28	4. 5. 22·49

f Persei.	
Nov. 28	4. 5. 50·63
Dec. 4	50·61

Groombridge 804.	
Feb. 6	4. 8. 56·13
Nov. 28	56·21
Dec. 4	56·06

Piazzi IV. 31.	
Dec. 5	4. 11. 3·65

56 Tauri.	
Jan. 19	4. 11. 44·31

54 Persei.	h m s
Jan. 28	4. 11. 46·71
Feb. 6	46·78
11	46·76

γ Tauri.	
Jan. 15	4. 12. 13·56

h Tauri.	
Jan. 25	4. 12. 28·44
Dec. 4	28·44

58 Tauri.	
Feb. 6	4. 13. 3·92
Nov. 28	3·90

χ Tauri.	
Dec. 5	4. 14. 29·54

55 Persei.	
Feb. 11	4. 15. 51·60

62 Tauri (1st Star).	
Nov. 28	4. 15. 56·91

62 Tauri (2d Star).	
Jan. 28	4. 15. 58·66
Nov. 28	58·88

56 Persei.	
Feb. 11	4. 16. 0·37

r Tauri.	
Dec. 2	4. 16. 36·74
4	36·84

κ^2 Tauri.	h m s
Jan. 28	4. 17. 29·82
Nov. 28	29·99
Dec. 5	29·79

70 Tauri.	
Jan. 19	4. 18. 1·78

π Tauri.	
Dec. 18	4. 19. 5·65

ϵ Tauri.	
Jan. 15	4. 20. 51·23
25	51·15
Feb. 23	51·27
Dec. 2	51·08
9	51·11

θ^1 Tauri.	
Dec. 5	4. 20. 58·92
18	58·65

b Tauri.	
Feb. 11	4. 21. 23·20
Nov. 28	23·35

Bradley 616.	
Feb. 23	4. 24. 0·46

e Persei.	
Dec. 5	4. 27. 28·90

Aldebaran.	
Jan. 15	4. 28. 17·47
Feb. 11	17·42
20	17·43

Aldebaran *continued.*	h m s
May 3	4. 28. 17·53
4	17·43
7	17·45
June 9	17·53
Dec. 4	17·47
5	17·51
9	17·53
18	17·46

d Tauri.	
Feb. 23	4. 28. 20·96

Bradley 635.	
Dec. 5	4. 29. 23·78

3 Camelopardali.	
Nov. 28	4. 29. 26·85

49 Eridani.	
Dec. 12	4. 30. 22·47

89 Tauri.	
Dec. 2	4. 30. 32·67

c^1 Tauri.	
Feb. 23	4. 30. 43·57
Dec. 18	43·48

σ^1 Tauri.	
Dec. 18	4. 31. 33·60

59 Persei.	
Feb. 8	4. 33. 28·55
23	28·59

4 Camelopardali.	h m s
Dec. 5	4. 36. 56·24

56 Eridani.	
Feb. 20	4. 37. 41·98

Piazzi IV. 179.	
Dec. 5	4. 38. 30·98
12	30·90
18	31·00

μ Eridani.	
Jan. 2	4. 38. 51·20
Feb. 23	51·21

a Camelopardali.	
Feb. 20	4. 40. 50·99

1 Aurigæ.	
Dec. 12	4. 40. 57·64
11	57·59

Bradley 661.	
Feb. 8	4. 43. 26·03

2 Aurigæ.	
Dec. 30	4. 43. 44·19

5 Camelopardali.	
May 30	4. 44. 11·27
Dec. 5	11·33
12	11·37

60 Eridani.	
Feb. 20	4. 44. 12·00

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π^4 Orionis.	h m s
Dec. 3	4. 47. 34·65
5	34·57

ι Aurigæ.	
Jan. 2	4. 48. 20·13

Bradley 671.	
Feb. 20	4. 49. 22·83
Dec. 12	22·86

4 Aurigæ.	
Dec. 3	4. 50. 14·01

5 Aurigæ.	
Dec. 5	4. 51. 9·91
12	9·94

ϵ Aurigæ.	
Dec. 18	4. 52. 25·64

9 Aurigæ.	
Feb. 20	4. 56. 16·08

η Aurigæ.	
Mar. 26	4. 57. 11·57
Dec. 5	11·47

ϵ Leporis.	
Jan. 2	4. 59. 49·99
Dec. 3	49·90
5	49·92
7	49·89

i Orionis.	h m s
Jan. 2	5. 0. 38·54

107 Tauri.	
Feb. 23	5. 0. 59·67
Dec. 7	59·45

68 Eridani.	
Feb. 23	5. 2. 8·27
Dec. 12	8·21

μ Aurigæ.	
Dec. 3	5. 4. 19·94
5	19·86

12 Aurigæ.	
Nov. 28	5. 6. 36·39
Dec. 12	36·33

Capella.	
Mar. 26	5. 6. 52·05
June 4	52·17
24	51·89
25	52·00
Dec. 30	52·26

κ Leporis.	
Feb. 23	5. 7. 5·50

108 Tauri.	
Dec. 5	5. 7. 28·11
7	28·09

Rigel.	h m s
Jan. 2	5. 8. 8·93
Feb. 20	8·89
Mar. 26	8·86
June 4	8·86
24	8·71
Dec. 18	8·77

16 Aurigæ.	
Dec. 3	5. 9. 27·24
7	27·06
18	27·08

18 Aurigæ.	
Feb. 20	5. 10. 37·58
Dec. 3	37·66

ρ Aurigæ.	
Feb. 14	5. 12. 23·68
Dec. 12	23·76

σ Aurigæ.	
Feb. 20	5. 15. 36·98
Dec. 7	36·95
12	36·98
18	36·84

8 Leporis.	
Feb. 14	5. 17. 25·09

e Orionis.	
Nov. 28	5. 17. 32·45
Dec. 24	32·46

ψ^1 Orionis.	
Dec. 7	5. 17. 50·62
24	50·61

β Tauri.	h m s
Jan. 2	5. 17. 53·07
Mar. 5	53·17
26	53·12
May 18	53·03
June 25	53·16

Bradley 755.	
Dec. 10	5. 18. 0·22

113 Tauri.	
Nov. 28	5. 18. 24·69
Dec. 3	24·68
12	24·52

ψ^2 Orionis.	
Feb. 20	5. 19. 52·25
Mar. 5	52·31
Dec. 24	52·18

116 Tauri.	
Jan. 2	5. 20. 7·19
Dec. 3	7·25

Bradley 774.	
Dec. 5	5. 20. 29·18

31 Orionis.	
Feb. 14	5. 22. 58·75

119 Tauri.	
Dec. 10	5. 24. 25·00

δ Orionis.	h m s
Jan. 2	5. 25. 12·74
Feb. 2	12·66
20	12·77
June 10	12·83
Dec. 3	12·68
5	12·62
7	12·72
12	12·70
18	12·66

10 Leporis.	
Nov. 28	5. 25. 26·10
Dec. 24	26·20

υ Orionis.	
Feb. 23	5. 25. 29·84
Mar. 5	29·99

α Leporis.	
Mar. 26	5. 26. 51·89

n^2 Orionis.	
Nov. 28	5. 27. 16·92
Dec. 5	16·76

Bradley 801 (1st Star).	
Feb. 14	5. 28. 30·95

Bradley 801 (2nd Star).	
Feb. 14	5. 28. 32·66
23	32·63

c Orionis.	
Feb. 2	5. 28. 49·53

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Bradley 1048.	h m s
Jan. 11	7. 6. 19·50

52 Geminorum.	
Jan. 28	7. 6. 33·82
Feb. 6	33·82

26 Canis Majoris.	
Dec. 13	7. 6. 45·67

Bradley 1061.	
Jan. 28	7. 9. 28·76
Feb. 4	28·70

Bradley 1054.	
Mar. 5	7. 11. 59·04

19 Lyncis.	
Mar. 5	7. 12. 0·39

ϑ Geminorum.	
Jan. 11	7. 12. 10·61
25	10·72
Feb. 2	10·71
20	10·71
Mar. 2	10·67
15	10·65
29	10·62
Oct. 18	10·74
Dec. 13	10·72

29 Canis Majoris.	
Jan. 28	7. 13. 8·00

65 Aurigæ.	h m s
Feb. 6	7. 13. 9·26
Mar. 2	9·16

30 Canis Majoris.	
Feb. 14	7. 13. 11·48

56 Geminorum.	
Mar. 15	7. 14. 5·94

A Geminorum.	
Jan. 11	7. 15. 21·84
25	21·96
28	21·90
Feb. 2	22·03

58 Geminorum.	
Mar. 2	7. 15. 28·48

21 Lyncis.	
Dec. 13	7. 16. 40·40

61 Geminorum.	
Mar. 15	7. 19. 5·94

Groombridge 1119.	
Sept. 21	7. 19. 7·77

β Canis Minoris.	
Feb. 20	7. 19. 56·23

ρ Geminorum.	
Feb. 14	7. 20. 33·16

Lalande 14524.	h m s
Jan. 28	7. 21. 23·91

68 Geminorum.	
Dec. 13	7. 26. 0·97

Castor.	
Feb. 6	7. 26. 6·52
Sept. 1	6·56

ϑ² Canis Minoris.	
Feb. 4	7. 26. 13·31

Bradley 1090.	
Mar. 15	7. 26. 41·48
21	41·49

ϑ³ Canis Minoris.	
Jan. 28	7. 27. 17·10
Feb. 14	17·16

υ Geminorum.	
Jan. 19	7. 27. 43·56

70 Geminorum.	
Feb. 6	7. 29. 48·77
Mar. 21	48·84

o Geminorum.	
Nov. 19	7. 30. 28·78
Dec. 13	28·78

Piazzi VII. 161.	h m s
Jan. 4	7. 31. 9·55

Bradley 1105.	
Mar. 28	7. 31. 24·26

f Geminorum.	
Mar. 15	7. 31. 47·60

Procyon.	
Jan. 28	7. 32. 20·28
Feb. 14	20·34
20	20·27
28	20·30
Mar. 5	20·25
29	20·29
June 10	20·27
11	20·35
22	20·24
25	20·22
26	20·30
Aug. 12	20·17
21	20·29
Sept. 1	20·25
Dec. 13	20·34

Bradley 1107.	
Mar. 5	7. 33. 3·04
21	3·12

Bradley 1104.	
Nov. 19	7. 33. 59·19
Dec. 13	59·14

c Geminorum.	
Jan. 11	7. 35. 59·85

κ Geminorum.	h m s
Feb. 6	7. 36. 24·94
14	24·79

Pollux.	
Jan. 28	7. 37. 10·32
Mar. 15	10·34
28	10·39
June 11	10·44
25	10·35
26	10·35
Aug. 21	10·54
Sept. 11	10·49

11 Canis Minoris.	
Feb. 4	7. 38. 56·82
Mar. 15	56·86

2 Puppis (1st Star).	
Mar. 21	7. 39. 21·74

2 Puppis (2nd Star).	
Mar. 5	7. 39. 22·12
21	22·22

4 Puppis.	
Feb. 6	7. 39. 49·53
Mar. 5	49·40

5 Puppis.	
Feb. 28	7. 41. 42·95

6 Puppis.	
Feb. 4	7. 43. 40·79
Mar. 28	40·76

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ζ Canis Minoris.	h m s
Feb. 28	7. 44. 48·09
Mar. 15	48·03

8 Puppis.	
Mar. 21	7. 45. 27·84

10 Puppis.	
Mar. 25	7. 46. 11·69
29	11·65

85 Geminorum.	
Feb. 4	7. 47. 53·99

12 Puppis.	
Mar. 29	7. 53. 23·57

28 Monocerotis.	
Feb. 4	7. 54. 27·27
6	27·27
28	27·38

6 Cancri.	
Jan. 4	7. 55. 20·80

7 Cancri.	
Mar. 21	7. 55. 59·19
28	59·21

B. F. 1128.	
Mar. 16	7. 57. 3·99

14 Puppis.	
Feb. 4	7. 58. 47·18
Mar. 29	47·25

15 Argûs.	h m s
Jan. 11	8. 1. 52·79
April 11	52·87

ψ^1 Cancri.	
Feb. 28	8. 2. 10·70
Mar. 15	10·56
21	10·61

Bradley 1147.	
July 23	8. 2. 44·48
24	44·67

18 Puppis.	
Mar. 21	8. 4. 30·09
28	29·98

56 Camelopardali.	
July 23	8. 4. 36·18
29	36·05
Aug. 2	36·40

19 Puppis.	
Feb. 4	8. 5. 1·85

Bradley 1169.	
July 23	8. 5. 56·60

Bradley 1160.	
July 27	8. 5. 57·05
Aug. 2	57·05

β Cancri.	
Jan. 4	8. 9. 18·08
Feb. 28	18·13
Mar. 16	18·01
April 11	18·08

d^1 Cancri.	h m s
Jan. 4	8. 15. 44·72
Feb. 14	44·72
Mar. 30	44·66
April 12	44·73
Dec. 22	44·83

22 Puppis.	
Feb. 6	8. 16. 31·92

Piazzi VIII. 46.	
April 12	8. 17. 11·19

Bradley 1188.	
Feb. 28	8. 17. 11·28

ϕ^1 Cancri.	
Feb. 4	8. 18. 22·14

o Ursæ Majoris.	
May 3	8. 19. 11·40

υ^3 Cancri.	
April 12	8. 23. 38·45

η Cancri.	
Feb. 6	8. 25. 0·90
28	0·97
Mar. 16	0·83
29	0·79
April 12	0·83

3 Ursæ Majoris.	h m s
April 12	8. 27. 21·19
Dec. 22	21·22

34 Lyncis.	
Dec. 22	8. 31. 49·00

Bradley 1219.	
Feb. 28	8. 32. 3·18
Mar. 29	3·15

42 Cancri.	
April 10	8. 33. 4·84

Bradley 1228.	
Feb. 6	8. 34. 11·52

γ Cancri.	
Feb. 14	8. 35. 35·12
Mar. 5	35·18
16	35·07
April 5	35·14
Dec. 22	35·11

δ Cancri.	
Mar. 16	8. 37. 7·46
Oct. 20	7·39

σ^1 Cancri.	
Feb. 28	8. 37. 11·50
Mar. 26	11·43
29	11·50

ι Cancri.	
April 10	8. 38. 38·52

ϵ Hydræ.	h m s
Feb. 14	8. 39. 43·85
April 5	43·81
May 3	43·86
June 4	43·90

b Ursæ Majoris.	
Feb. 28	8. 42. 23·38
Mar. 21	23·22
26	23·53

51 Cancri.	
April 5	8. 44. 21·26
12	21·33

ρ^1 Cancri.	
Feb. 28	8. 44. 28·57
Mar. 16	28·41
21	28·49

6 Ursæ Majoris.	
April 2	8. 45. 11·24

σ^2 Cancri.	
April 10	8. 46. 7·48

59 Cancri.	
April 10	8. 48. 43·77
May 3	43·82

ι Ursæ Majoris.	
June 4	8. 50. 5·42
Oct. 7	5·17
28	5·18

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42 Leonis Minoris.	
	h m s
April 30	10. 38. 27·83

43 Leonis Minoris.	
April 8	10. 41. 36·81
May 3	36·85

l Leonis.	
Mar. 16	10. 42. 15·90
25	15·90
April 29	15·91
May 4	15·87
11	15·85

39 Sextantis.	
Mar. 26	10. 42. 18·02
Dec. 22	17·97

40 Sextantis.	
Mar. 2	10. 42. 32·64

44 Leonis Minoris.	
April 27	10. 42. 34·92
30	34·88
May 3	34·84

43 Ursæ Majoris.	
Aug. 2	10. 42. 57·77
6	57·90
12	57·52
13	57·79

b^2 Hydræ.	
Mar. 2	10. 44. 35·51

48 Leonis Minoris.	
	h m s
Mar. 25	10. 47. 28·48
26	28·52
April 29	28·52

47 Leonis Minoris.	
Mar. 27	10. 47. 34·14
April 27	34·22
30	34·18

Bradley 1574.	
April 8	10. 48. 22·02
23	22·07
May 3	21·97

56 Leonis.	
Mar. 2	10. 49. 7·07

50 Leonis Minoris.	
April 8	10. 49. 21·16
30	21·12
May 11	21·13

49 Ursæ Majoris.	
Mar. 25	10. 53. 22·70
27	22·70
April 8	22·75
30	22·77
May 3	22·71

Bradley 1521.	
May 4	10. 53. 34·57
Dec. 22	34·11

d Leonis.	
Mar. 15	10. 53. 41·46
26	41·47
April 23	41·46
27	41·46

b Leonis.	
	h m s
April 23	10. 55. 13·59
27	13·59

a Ursæ Majoris.	
June 4	10. 55. 30·07
Aug. 22	29·78
Sept. 28	29·75
Oct. 16	29·62
17	29·85
26	29·46
Nov. 6	29·64
8	29·25
21	29·58
23	29·58

Lalande (F) 1729.	
Mar. 15	10. 56. 15·26
26	14·74
April 3	15·52
Sept. 20	14·30
Oct. 1	14·87

51 Ursæ Majoris.	
Mar. 25	10. 57. 7·11

Piazzi X. 228.	
Mar. 2	10. 57. 19·65
25	19·90

χ Leonis.	
May 3	10. 58. 9·30
Dec. 22	9·18

64 Leonis.	
April 8	11. 0. 32·30
23	32·33

67 Leonis.	
	h m s
May 3	11. 1. 40·68
4	40·65

Piazzi X. 252.	
April 27	11. 1. 59·85

δ Leonis.	
Mar. 2	11. 7. 1·87
25	1·90
27	1·97
April 8	1·87
27	1·93
May 4	1·83
6	1·87
Oct. 7	1·84
16	1·87
17	1·85
Dec. 22	1·87

Piazzi XI. 22.	
April 27	11. 9. 0·82
29	0·84
May 3	0·78
4	0·81
6	0·83

σ Leonis.	
Mar. 25	11. 14. 16·67
April 3	16·60
May 4	16·61
Dec. 17	16·66

71 Leonis.	
April 23	11. 15. 31·18
30	31·15
May 3	31·18
4	31·12
6	31·18

Piazzi XI. 60.	
	h m s
April 23	11. 18. 4·92
27	4·97

τ Leonis.	
April 30	11. 21. 5·77

57 Ursæ Majoris.	
May 3	11. 21. 53·90
6	53·86
Dec. 22	53·99

85 Leonis.	
April 27	11. 22. 46·12
29	46·07
30	46·06
May 4	46·06

λ Draconis.	
April 3	11. 23. 28·51

86 Leonis.	
May 3	11. 23. 32·47
4	32·48

88 Leonis (1st Star).	
April 23	11. 24. 52·16

88 Leonis (2nd Star).	
April 23	11. 24. 52·78
27	52·79
29	52·82

Bradley 1579.	
Dec. 22	11. 26. 19·66

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89 Leonis.	
	h m s
Dec. 17	11. 27. 33·50

ν Leonis.	
Mar. 30	11. 30. 8·35
May 6	8·39
Dec. 17	8·24

60 Ursæ Majoris.	
Mar. 25	11. 31. 24·42

ω Virginis.	
April 23	11. 31. 36·06
27	36·11

92 Leonis.	
April 29	11. 33. 51·97
May 3	51·97
4	51·95

Piazzi XI. 146.	
April 27	11. 36. 34·25
30	34·28
May 3	34·36
4	34·33
18	34·28

β Leonis.	
Mar. 16	11. 42. 16·37
25	16·44
29	16·47
April 11	16·41
23	16·44
27	16·45
May 3	16·44
7	16·45
17	16·44
Sept. 5	16·41

β Leonis *continued.*	
	h m s
Oct. 17	11. 42. 16·46
18	16·44
25	16·50
Dec. 17	16·60
22	16·45

Piazzi XI. 164.	
April 9	11. 42. 46·68
29	46·79
30	46·76
May 4	46·73
18	46·73

B. A. C. 4005.	
April 9	11. 44. 5·70
23	5·65
27	5·72
29	5·72
30	5·67

Groombridge 1830.	
Mar. 30	11. 45. 18·35

γ Ursæ Majoris.	
Oct. 4	11. 46. 49·29
17	49·42
25	49·51
25	49·29
Nov. 8	49·12
Dec. 4	48·80

A² Virginis.	
April 23	11. 48. 13·68
27	13·72

o Leonis.	
April 9	11. 48. 50·03

Bradley 1614.	
	h m s
May 4	11. 48. 54·53
17	54·60
18	54·55

66 Ursæ Majoris.	
May 3	11. 49. 0·51

η Crateris.	
April 29	11. 49. 14·36
May 7	14·37
Dec. 24	14·23

W. B. XI. 890.	
Mar. 30	11. 52. 37·44

π Virginis.	
Mar. 15	11. 54. 3·56
April 9	3·45
23	3·38
29	3·44
May 4	3·44
7	3·42
18	3·40

1 Comæ.	
Mar. 25	11. 54. 55·38

2 Comæ (2nd Star).	
April 23	11. 57. 27·89
29	27·91
30	27·83

Groombridge 1850.	
Mar. 16	11. 57. 59·84
Oct. 3	60·08

o Virginis.	
	h m s
Mar. 25	11. 58. 26·09
30	26·01

ε Corvi.	
April 5	12. 3. 17·44
June 10	17·35

3 Comæ.	
May 3	12. 3. 44·82
6	44·77

Piazzi XII. 3.	
April 29	12. 4. 0·53
May 7	0·49
18	0·54
Dec. 24	0·40

68 Ursæ Majoris.	
Mar. 25	12. 5. 6·22
30	6·26
May 17	6·46

5 Comæ.	
April 6	12. 5. 23·18
9	23·34

Bradley 1633.	
May 4	12. 5. 30·89
Dec. 24	30·20

Bradley 1634.	
April 30	12. 5. 55·79

γ Corvi.	
April 6	12. 8. 58·14

7 Comæ.	
	h m s
Mar. 25	12. 9. 36·63

W. B. XII. 136.	
Mar. 30	12. 9. 55·03

Bradley 1642 (1st Star).	
May 4	12. 10. 20·11
18	19·66
Dec. 24	19·27

Bradley 1642 (2nd Star).	
May 4	12. 10. 23·86
18	23·68
Dec. 24	23·34

9 Comæ.	
Mar. 25	12. 12. 49·71
29	49·69
30	49·69

Bradley 1650.	
April 11	12. 12. 50·33

η Virginis.	
May 23	12. 13. 6·12
June 10	6·12

10 Comæ.	
April 9	12. 13. 9·14
29	9·09
30	9·05
May 3	9·06
6	9·11

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η Boötis.

	h m s
June 11	13. 48. 21·02
Aug. 12	21·17
22	21·16
Oct. 31	21·14
Nov. 1	21·13
4	21·13
6	20·94
26	21·11
27	21·14
Dec. 1	21·11

9 Boötis.

May 1	13. 50. 29·76

10 Boötis.

April 27	13. 52. 24·97
May 1	25·03

τ Virginis.

May 21	13. 54. 52·64
29	52·78

11 Boötis.

May 2	13. 55. 8·60

94 Virginis.

June 11	13. 59. 15·46

α Draconis.

Aug. 22	14. 0. 47·60
Nov. 1	47·45
4	47·43
27	47·45
Dec. 1	47·43

Piazzi XIII. 316.

	h m s
April 27	14. 2. 36·65
May 1	36·68
2	36·66
3	36·67
10	36·75

3 Ursæ Minoris.

May 21	14. 5. 54·99
June 1	55·17

ι Virginis.

May 2	14. 9. 2·54

Arcturus.

April 27	14. 9. 35·73
May 8	35·71
11	35·77
29	35·75
June 1	35·70
11	35·74
Aug. 22	35·76
Sept. 2	35·76
Oct. 3	35·64
8	35·74
23	35·70
26	35·73
31	35·84
Nov. 1	35·77
4	35·78
6	35·61
7	35·85
26	35·76
27	35·71
Dec. 1	35·76

Bradley 1848.

May 1	14. 9. 49·00
2	48·99
3	49·05
7	48·99
10	49·02

λ Virginis.

	h m s
Feb. 22	14. 11. 55·09
23	54·95

A Boötis.

April 27	14. 12. 22·47
May 1	22·39
7	22·42
11	22·34
21	22·42

Bradley 1856.

May 29	14. 12. 37·22

Groombridge 2100.

May 2	14. 14. 19·94
3	20·02
7	20·03
9	20·09
11	20·08

f Boötis.

May 2	14. 20. 16·16
7	16·14
24	16·19
29	16·26

52 Hydræ.

April 27	14. 20. 23·49
May 28	23·55

θ Boötis.

May 3	14. 20. 40·05
29	40·09

106 Virginis.

May 8	14. 21. 40·96

Groombridge 2116.

	h m s
May 1	14. 24. 22·21
3	22·27
9	22·36

ρ Boötis.

June 3	14. 26. 5·89
Nov. 4	5·84
26	5·86

5 Ursæ Minoris.

May 8	14. 27. 50·38
29	50·23
June 1	50·80

Groombridge 2135.

May 3	14. 33. 12·74
9	12·85

Piazzi XIV. 150.

April 2	14. 35. 31·99
May 22	31·90
24	31·88
28	31·89
June 1	31·79

o Boötis.

May 3	14. 39. 2·13
9	2·22

ε Boötis.

May 29	14. 39. 10·69
June 1	10·74
3	10·78
Oct. 23	10·69
26	10·82
Nov. 6	10·60
26	10·72
27	10·80
28	10·68

α² Libræ.

	h m s
April 2	14. 43. 31·54
May 17	31·48
22	31·50
June 1	31·51
3	31·47

B.F. 2033.

May 3	14. 45. 14·59
22	14·55
28	14·66
29	14·61

ξ¹ Libræ.

April 2	14. 47. 9·88

Piazzi XIV. 204.

June 1	14. 47. 35·34

ξ² Libræ.

May 9	14. 49. 33·23
22	33·29

Piazzi XIV. 226.

May 3	14. 50. 59·61
9	59·54

β Ureæ Minoris.

April 2	14. 51. 7·43
Oct. 23	7·17
26	7·56
Nov. 7	7·54
26	7·36
27	7·42
28	7·36

B.F. 2051.

May 3	14. 54. 19·99
22	19·98
28	20·04
29	19·97
June 1	20·08

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β Boötis.	h m s
May 22	14. 56. 56·12

ψ Boötis.	
May 3	14. 58. 44·78
23	44·75
28	44·84
June 4	44·77

ν^1 Libræ.	
May 17	14. 59. 12·71

ι^1 Libræ.	
Feb. 24	15. 4. 38·66

Groombridge 2201.	
April 8	15. 8. 31·72
May 3	31·75
22	31·67
27	31·77
28	31·75

β Libræ.	
April 8	15. 9. 51·17
9	51·09
30	51·11
May 4	51·17
June 26	51·20

δ Boötis.	
April 2	15. 10. 8·42

σ^2 Libræ.	
April 8	15. 15. 36·96
29	36·89
May 6	36·86
June 11	36·91
22	36·89
25	36·98

50 Boötis.	h m s
April 30	15. 16. 29·06
May 22	29·01

Piazzi XV. 54.	
April 2	15. 16. 34·59
May 27	34·57
28	34·64
June 10	34·56

μ^1 Boötis.	
April 2	15. 19. 27·93
May 23	27·90
30	28·05

τ^1 Serpentis.	
April 8	15. 19. 37·37
May 18	37·35
22	37·36

ζ^1 Libræ.	
April 9	15. 20. 45·57
May 24	45·59
27	45·55
June 10	45·64
14	45·56
22	45·61

γ^2 Ursæ Minoris.	
June 11	15. 20. 57·73
Nov. 5	57·67
27	57·89

Groombridge 2283.	
June 25	15. 21. 17·28
26	18·44

θ Coronæ.	h m s
May 6	15. 27. 34·06

γ Libræ.	
May 17	15. 28. 5·63
18	5·38
June 14	5·40

α Coronæ.	
April 2	15. 29. 3·35
May 6	3·42
7	3·40
8	3·51
24	3·43
28	3·43
June 3	3·44
Aug. 27	3·51
Sept. 18	3·48
Oct. 23	3·49
Nov. 2	3·46
5	3·43
7	3·34
26	3·43
27	3·43
28	3·47

40 Libræ.	
May 22	15. 30. 29·63
June 26	29·60

Groombridge 2253.	
May 21	15. 30. 36·37
23	36·33
27	36·49
28	36·46
June 4	36·42

τ^6 Serpentis.	
May 18	15. 34. 52·33
21	52·33
23	52·39

α Serpentis.	h m s
May 4	15. 37. 43·15
18	43·13
June 26	43·09
Aug. 27	43·19
Oct. 26	43·13
Nov. 2	43·19
7	43·10
26	43·10
27	43·09
28	43·06

π Coronæ.	
May 21	15. 38. 44·85

χ Lupi.	
May 27	15. 42. 31·21
28	30·92
29	30·76
June 26	30·89

κ Serpentis.	
May 18	15. 42. 45·30
21	45·25
22	45·22

ϵ Serpentis.	
May 22	15. 44. 11·22
23	11·22
June 25	11·29

θ Libræ.	
May 17	15. 46. 15·47
18	15·41

Oeltz. Arg. 15028.	
June 26	15. 48. 16·56

ξ^2 Lupi (1st Star).	
May 28	15. 48 23·54

ξ^2 Lupi (2d Star).	h m s
May 28	15. 48. 24·31

ζ Ursæ Minoris.	
Jan. 28	15. 48. 51·94
Oct. 23	51·90

γ Serpentis.	
May 7	15. 50. 18·66
27	18·73
Sept. 4	18·65

Oeltz. Arg. 15067.	
May 29	15. 50. 23·58

48 Libræ.	
Feb. 24	15. 50. 44·66

λ Coronæ.	
May 18	15. 50. 57·44
June 3	57·43
6	57·32
10	57·31
25	57·42

δ Scorpii.	
May 28	15. 52. 28·42

50 Libræ.	
May 24	15. 53. 36·97

Var. (T) Coronæ.	
May 7	15. 53. 56·30
8	56·25
17	56·31
18	56·45
21	56·11
22	56·30
23	56·11
27	56·37

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α Ophiuchi *continued.*	h m s
Sept 19	17. 28. 45·70
20	45·61
Oct. 17	45·70
Nov. 27	45·70
28	45·72
29	45·66

Groombridge 2444.	
June 4	17. 28. 54·23
Aug. 24	54·09
27	54·18

ξ Serpentis.	
July 13	17. 29. 58·21
14	58·27
Aug. 9	58·39
10	58·35

Piazzi XVII. 167.	
June 26	17. 32. 18·44

W.B. XVII. 636.	
July 13	17. 33. 24·07

o Serpentis.	
July 14	17. 33. 56·46

Piazzi XVII. 196.	
June 10	17. 34. 56·22
21	56·20
25	56·34
July 16	56·16

58 Ophiuchi.	
May 30	17. 35. 27·65
June 4	27·76
14	27·61

β Ophiuchi.	h m s
Feb. 6	17. 36. 54·17
May 29	54·14
June 10	54·19
Aug. 24	54·12
27	54·25
Sept. 20	54·10
Oct. 17	54·14
Nov. 27	54·19
28	54·22

ω Draconis.	
Aug. 27	17. 37. 43·89
Sept. 19	44·03

84 Herculis.	
May 21	17. 37. 54·13
June 4	54·11
10	54·11

Oeltz. Arg. 17415.	
June 25	17. 38. 43·94

μ Herculis.	
Feb. 6	17. 41. 15·22
June 11	15·32
14	15·27
26	15·35
Sept. 20	15·24
Oct. 17	15·27
Nov. 27	15·26
28	15·25

z Herculis.	
May 30	17. 46. 34·54
June 25	34·82

Piazzi XVII. 281.	h m s
June 17	17. 48. 40·16

89 Herculis.	
June 10	17. 50. 3·21
11	3·37
17	3·36
25	3·39
July 16	3·27
Aug. 27	3·32

4 Sagittarii.	
Aug. 24	17. 51. 40·40
27	40·46

5 Sagittarii.	
May 29	17. 52. 2·35

γ Draconis.	
Nov. 27	17. 53. 31·11
28	31·11
29	31·13

Piazzi XVII. 323.	
July 16	17. 54. 41·25

7 Sagittarii.	
May 29	17. 54. 42·18
July 14	42·15

68 Ophiuchi.	
June 26	17. 55. 0·36

95 Herculis (1st Star).	h m s
June 25	17. 55. 51·52

95 Herculis (2nd Star).	
June 25	17. 55. 52·03

96 Herculis.	
June 26	17. 56. 41·94

ψ² Draconis.	
July 24	17. 57. 29·71
31	29·33
Aug. 2	29·51

98 Herculis.	
May 21	18. 0. 25·81
Aug. 10	25·82

72 Ophiuchi.	
Mar. 15	18. 1. 2·68
June 4	2·63
17	2·61
Aug. 12	2·70
27	2·74
Sept. 5	2·61
25	2·67
28	2·62
Oct. 1	2·63
3	2·57
8	2·64
17	2·65
23	2·67

Piazzi XVII. 367.	
Sept. 4	18. 1. 31·24

100 Herculis (1st Star).	
June 26	18. 2. 27·78

100 Herculis (2nd Star).	h m s
June 26	18. 2. 27·85

101 Herculis.	
July 13	18. 3. 8·77
16	8·83

μ¹ Sagittarii.	
May 21	18. 5. 48·57
June 4	48·53
17	48·68
26	48·57
Aug. 10	48·62
12	48·58
Sept. 4	48·54

Groombridge 2533.	
June 24	18. 11. 30·66
July 13	30·58
16	30·54
24	30·67
31	30·64

η Serpentis.	
Aug. 2	18. 14. 25·58
Sept. 25	25·69

106 Herculis.	
July 13	18. 14. 40·35
16	40·29

109 Herculis.	
Aug. 2	18. 18. 1·84
Sept. 21	1·87
25	1·80
Oct. 17	1·85

λ Sagittarii.	
Mar. 27	18. 19. 45·89

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Groombridge 2563.	h m s
Aug. 19	18. 20. 3·84
Sept. 25	3·78

Piazzi XVIII. 72.	
Sept. 4	18. 21. 17·72

W. B. XVIII. 483.	
Aug. 19	18. 21. 26·31

Bradley 2313.	
May 21	18. 21. 36·95
Aug. 10	36·88

Piazzi XVIII. 79.	
Aug. 20	18. 22. 21·07
Sept. 4	21·27

χ Draconis.	
Aug. 6	18. 23. 27·09
Sept. 21	27·17
Oct. 17	27·06

Piazzi XVIII. 100.	
June 24	18. 24. 4·95
July 13	4·89
16	4·85
Aug. 2	4·94

Piazzi XVIII. 116.	
Aug. 2	18. 27. 14·12
10	14·16

α Lyræ.	h m s
Jan. 10	18. 32. 26·24
Feb. 6	26·16
10	26·17
July 13	26·17
23	26·17
Aug. 9	26·03
10	26·11
Sept. 7	26·15
12	26·00
13	26·10
25	25·96
Oct. 23	26·12
Dec. 5	26·15

2 Aquilæ.	
July 23	18. 34. 59·49
31	59·49
Aug. 6	59·44
Sept. 21	59·47

Piazzi XVIII. 160.	
Aug. 2	18. 35. 41·76
Sept. 4	41·81
7	41·78
13	41·74
21	41·77
25	41·65

28 Sagittarii.	
July 14	18. 38. 19·27

110 Herculis.	
July 16	18. 39. 56·28
31	56·32
Aug. 2	56·31

Bradley 2412.	
July 14	18. 41. 38·70
23	39·79
Aug. 2	39·42

Lacaille 7898.	h m s
Sept. 13	18. 44. 9·14

ν^2 Lyræ.	
July 16	18. 44. 54·91
31	55·04
Aug. 2	55·08

β Lyræ.	
Feb. 10	18. 45. 10·22
July 13	10·19
23	10·27
Sept. 4	10·19
Oct. 17	10·22
23	10·24

ν^1 Sagittarii.	
July 14	18. 46. 8·23

113 Herculis.	
July 16	18. 49. 8·02
23	8·03

o^1 Draconis.	
Sept. 21	18. 49. 13·15
25	12·91

o^2 Draconis.	
July 31	18. 49. 14·30

ξ^2 Sagittarii.	
Sept. 7	18. 49. 47·53

13 Lyræ.	
Sept. 25	18. 51. 17·15

Bradley 2388.	h m s
July 16	18. 52. 2·41
23	2·54
Aug. 2	2·47
12	2·41
13	2·37

ε Aquilæ.	
May 21	18. 53. 35·12
Aug. 20	35·11
Sept. 13	35·12

o Sagittarii.	
May 21	18. 56. 42·67
22	42·81
Sept. 7	42·56

ζ Aquilæ.	
July 16	18. 59. 17·76
23	17·76
Aug. 2	17·89
12	17·70
20	17·74
23	17·72

Piazzi XVIII. 318.	
July 23	19. 1. 21·07
30	21·12
Aug. 2	21·09
13	20·96
16	20·98

π Sagittarii.	
May 21	19. 1. 51·19
22	51·18
July 16	51·19
27	51·25
Aug. 9	51·17

ι Lyræ.	h m s
July 30	19. 2. 33·46
Sept. 18	33·36

B. F. 2591.	
July 23	19. 6. 54·43
24	54·41
27	54·58
30	54·52
Aug. 2	54·51

ω Aquilæ.	
Aug. 12	19. 11. 34·41
13	34·42
Sept. 7	34·35
20	34·34

δ Draconis.	
Aug. 20	19. 12. 31·05
Sept. 17	31·03
18	31·10
25	30·97

ρ^1 Sagittarii.	
July 16	19. 13. 57·44
Aug. 12	57·38

κ Cygni.	
Sept. 20	19. 14. 1·70
Nov. 2	1·71

Groombridge 2812.	
July 23	19. 14. 31·39
24	31·36
Aug. 2	31·40
13	31·29
16	31·28

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50 Sagittarii.	
	h m s
July 16	19. 18. 23·11

δ Aquilæ.	
May 21	19. 18. 47·49
Aug. 2	47·52
Sept. 10	47·48
13	47·53

π Draconis.	
Aug. 12	19. 19. 58·60

4 Cygni.	
July 23	19. 21. 21·81
24	21·84

α Vulpeculæ.	
Sept. 10	19. 23. 10·34
20	10·30
Nov. 2	10·27

μ Aquilæ.	
July 16	19. 27. 35·54
24	35·35
Sept. 2	35·59
3	35·55
6	35·49
10	35·43
Nov. 2	35·54

σ Draconis.	
July 23	19. 32. 37·01
Sept. 2	36·69
3	36·49
6	36·90

Piazzi XIX. 237.	
Sept. 12	19. 36. 58·75

γ Aquilæ.	
	h m s
Feb. 6	19. 39. 56·21
July 16	56·16
23	56·11
Sept. 2	56·25
3	56·15
24	56·15
Oct. 8	56·12

δ Cygni.	
Sept. 2	19. 40. 49·22
21	48·96
Oct. 8	49·07

χ^1 Cygni (1st Star).	
Aug. 22	19. 41. 22·72
Sept. 3	22·81
10	22·70

χ^1 Cygni (2nd Star).	
Sept. 10	19. 41. 24·70

α Aquilæ.	
Feb. 6	19. 44. 17·63
10	17·69
July 16	17·51
23	17·55
Aug. 2	17·56
12	17·55
Sept. 6	17·66
24	17·66
25	17·59

* N.P.D. 57°. 27′.	
Sept. 24	19. 45. 50·61

ε Draconis.	
Feb. 28	19. 48. 36·10
Sept. 2	36·42
21	36·69
25	36·48

ε Draconis *continued*.	
	h m s
Oct. 8	19. 48. 36·56
Nov. 7	36·71

β Aquilæ.	
July 23	19. 48. 46·75
Aug. 2	46·82
22	46·73
23	46·85

c Sagittarii.	
July 23	19. 54. 28·51
Sept. 12	28·65

63 Sagittarii.	
Aug. 12	19. 54. 31·45
13	31·45

λ Ursæ Minoris.	
Sept. 25	19. 57. 11·25

17 Vulpeculæ.	
Aug. 22	20. 1. 10·57
Sept. 3	10·41
6	10·49
18	10·67
Oct. 19	10·60

θ Aquilæ.	
Aug. 6	20. 4. 26·53
Sept. 3	26·56
Oct. 5	26·52
19	26·62

Lacaille 8386.	
Sept. 12	20. 7. 34·66

Var. (R) Sagittarii.	
	h m s
Oct. 5	20. 7. 59·51

23 Vulpeculæ.	
July 23	20. 10. 15·49
Aug. 23	15·48

α^2 Capricorni.	
July 16	20. 10. 40·39
Aug. 6	40·41
12	40·37
13	40·36
Sept. 3	40·45
10	40·35
24	40·43
Oct. 5	40·43
7	40·37
19	40·40

κ Cephei.	
Mar. 29	20. 13. 18·52
Aug. 22	18·99
Sept. 12	18·55
21	19·06
25	18·68

Bradley 2618.	
Sept. 18	20. 13. 24·37

β Capricorni.	
Aug. 6	20. 13. 32·16
9	32·26
Sept. 24	32·20
30	32·24
Oct. 19	32·20

Groombridge 3140.	
Aug. 22	20. 15. 26·18
Sept. 3	26·04
Oct. 19	26·06

Lacaille 8427.	
	h m s
Sept. 21	20. 16. 32·31
Oct. 7	32·22

Lacaille 8442.	
Sept. 21	20. 18. 22·93
Oct. 28	22·88

ρ Capricorni.	
Sept. 10	20. 21. 16·29
16	16·26
Oct. 7	16·30
19	16·29
Nov. 7	16·33

Lacaille 8466.	
Sept. 21	20. 22. 47·81
Oct. 28	47·80

ω^1 Cygni.	
Oct. 5	20. 22. 58·51
8	58·40
Nov. 7	58·52

ε Delphini.	
Aug. 22	20. 26. 51·45
Sept. 3	51·53
6	51·47
12	51·49
16	51·55
24	51·49
25	51·52
Oct. 7	51·45
10	51·47

θ Cephei.	
Feb. 28	20. 27. 20·49
Sept. 20	20·69

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Bradley 2673.	h m s
Aug. 22	20. 30. 33·75
Sept. 3	33·60
6	33·64
16	33·74
24	33·94
25	33·82

τ^2 Capricorni.	
Aug. 13	20. 31. 49·96
Nov. 3	49·94

73 Draconis.	
Oct. 10	20. 33. 13·87

α Delphini.	
Aug. 10	20. 33. 27·57
Sept. 16	27·58
Oct. 1	27·59
Nov. 7	27·65
Dec. 2	27·59

49 Cygni.	
Sept. 3	20. 35. 39·71
16	39·57
24	39·67

α Cygni.	
Mar. 5	20. 36. 53·82
Sept. 25	53·78
Oct. 28	53·92
Dec. 2	53·85

ϵ Aquarii.	
Aug. 2	20. 40. 28·39
10	28·47
Sept. 6	28·40
25	28·52
Oct. 10	28·37

α Microscopii.	h m s
Oct. 10	20. 41. 39·02
28	39·28

η Cephei.	
Mar. 5	20. 42. 34·77
Sept. 25	34·83
Dec. 2	34·71

32 Vulpeculæ.	
Sept. 7	20. 48. 53·61
24	53·51
30	53·52
Oct. 10	53·57
Nov. 27	53·56

76 Draconis.	
Nov. 27	20. 52. 2·21

ν Cygni.	
Sept. 20	20. 52. 12·95
24	12·83

Bradley 2749.	
Sept. 25	20. 53. 31·40
30	31·51

f^1 Cygni.	
Feb. 28	20. 55. 18·03
Mar. 26	18·15

θ Capricorni.	
Aug. 13	20. 58. 28·07
Oct. 7	28·01
8	28·07
Dec. 2	28·05

ξ Cygni.	h m s
Aug. 27	21. 0. 5·72
Sept. 30	5·71
Oct. 28	5·61
Nov. 2	5·62
Dec. 2	5·64

61 Cygni (1st Star).	
Nov. 27	21. 0. 56·27

61 Cygni (2nd Star).	
Nov. 27	21. 0. 57·77

ν Aquarii.	
Oct. 7	21. 2. 20·71
8	20·87

ζ Cygni.	
Aug. 27	21. 7. 16·61
Sept. 30	16·56
Oct. 5	16·63
Nov. 27	16·65

α Equulei.	
Sept. 20	21. 9. 10·47
Oct. 5	10·53
Nov. 5	10·52
27	10·55

ι Capricorni.	
Sept. 1	21. 14. 50·28
Nov. 5	50·33
Dec. 2	50·23

α Cephei.	h m s
Aug. 27	21. 15. 24·15
Sept. 20	24·21
25	24·17
Nov. 27	24·31
Dec. 2	23·97

1 Pegasi.	
Aug. 26	21. 15. 55·98

Bradley 2832.	
Aug. 20	21. 24. 6·74

g^1 Cygni.	
Sept. 30	21. 24. 32·65

β Aquarii.	
Aug. 24	21. 24. 33·32
Oct. 1	33·31

Groombridge 3548.	
Mar. 26	21. 25. 36·68

β^1 Cephei.	
Sept. 20	21. 26. 53·61
Nov. 5	53·67
27	53·64

β^2 Cephei.	
Sept. 18	21. 26. 56·07
20	55·85
30	56·03
Nov. 2	55·78
5	56·05
27	56·04

7 Piscis Australis.	h m s
Aug. 22	21. 28. 49·13

72 Cygni.	
Oct. 1	21. 29. 20·72

ϵ Capricorni.	
Aug. 24	21. 29. 37·77
27	37·79
Sept. 3	37·87
20	37·78

ξ Aquarii.	
June 21	21. 30. 40·12
Sept. 7	40·10
13	40·13
Nov. 2	40·21
11	40·08

γ Capricorni.	
June 21	21. 32. 43·13
Aug. 6	43·02
Sept. 10	43·11
Nov. 5	43·12

42 Capricorni.	
Aug. 24	21. 34. 18·80
27	18·79
Sept. 3	18·85

Bradley 2854.	
Aug. 22	21. 37. 18·06
Sept. 7	18·17
13	18·27

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ε Pegasi.	h m s
June 21	21. 37. 39·22
Aug. 27	39·12
Sept. 3	39·22
Oct. 5	39·27

Bradley 2841.	
Sept. 18	21. 37. 45·89
20	45·99
28	45·79

Bradley 2833.	
Oct. 1	21. 37. 49·50

c¹ Capricorni.	
Aug. 22	21. 37. 54·58

λ Capricorni.	
Oct. 8	21. 39. 22·42

δ Capricorni.	
Aug. 24	21. 39. 41·79

Bradley 2851.	
Aug. 20	21. 39. 54·84

11 Cephei.	
Aug. 27	21. 39. 57·75
Sept. 18	57·77
25	57·85
30	57·80
Nov. 2	57·73
5	57·83

γ Cephei.	h m s
Sept. 3	21. 41. 36·80
20	36·79
30	36·71
Dec. 2	36·50

μ Capricorni.	
Oct. 8	21. 46. 2·59
Dec. 2	2·47

16 Pegasi.	
Aug. 20	21. 47. 0·71
27	0·65
Sept. 28	0·66
30	0·65
Oct. 1	0·72
Nov. 27	0·84

79 Draconis.	
Aug. 6	21. 51. 12·39
27	12·47
Sept. 3	12·65
20	12·45
25	12·68
28	12·70
30	12·86
Oct. 1	12·78

η Piscis Australis.	
Aug. 20	21. 53. 11·38
22	11·46
24	11·40
Sept. 20	11·42
28	11·45
30	11·50
Oct. 1	11·44
17	11·42
28	11·57
Nov. 2	11·48
6	11·40

Bradley 2884.	h m s
Aug. 6	21. 54. 55·82

16 Cephei.	
Oct. 5	21. 57. 20·50

α Aquarii.	
June 21	21. 58. 57·07
Aug. 10	57·03
23	57·04
24	57·02
Sept. 25	57·13
Oct. 7	56·98
17	57·14
19	57·08
26	56·98
Nov. 6	57·09
8	57·18

ι Aquarii.	
Dec. 2	21. 59. 15·12
3	15·13

15 Cephei.	
Aug. 22	21. 59. 34·04
Sept. 7	34·12

ξ¹ Cephei.	
April 30	21. 59. 55·37
Nov. 2	55·53
5	55·59

ξ² Cephei.	
April 30	21. 59. 56·29
Nov. 2	56·37
5	56·53

μ Piscis Australis.	h m s
Aug. 20	22. 0. 37·00
24	36·87
Sept. 13	36·97

ι Pegasi.	
June 21	22. 0. 49·25
Sept. 18	49·22
20	49·31

20 Cephei.	
Sept. 3	22. 0. 58·00
6	58·24

35 Aquarii.	
Aug. 9	22. 1. 41·21

15 Piscis Australis.	
Aug. 24	22. 2. 20·80
Sept. 1	20·85
5	

Bradley 2904.	
Sept. 20	22. 2. 28·58

Bradley 2935 (1st Star).	
Aug. 10	22. 2. 50·41
Sept. 18	50·29

Bradley 2935 (2d Star).	
Aug. 10	22. 2. 56·95
Sept. 18	56·98

39 Aquarii.	
Aug. 23	22. 5. 15·18

Bradley 2938.	h m s
Aug. 27	22. 9. 38·75

θ Aquarii.	
June 21	22. 9. 48·77
Aug. 6	48·75
22	48·75
24	48·79
Sept. 5	48·82
7	48·74
12	48·78
Oct. 1	48·81
26	48·80
Nov. 2	48·81
5	48·83
6	48·72
8	48·74
Dec. 12	48·81

Bradley 2942.	
Aug. 20	22. 10. 27·78
22	27·80

γ Aquarii.	
Aug. 9	22. 14. 47·18
20	47·17
22	47·19
Sept. 3	47·14
19	47·12
Nov. 21	47·15
28	47·10

32 Pegasi.	
Aug. 27	22. 15. 11·00
Oct. 1	11·05
3	10·97

β Lacertæ.	
Sept. 7	22. 18. 19·97
16	19·92
18	20·07

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σ Aquarii.	h m s
July 24	22. 23. 36·30
Aug. 12	36·32
13	36·40
Sept. 12	36·38
19	36·41
Oct. 8	36·42
10	36·31
Nov. 5	36·48
6	36·42
Dec. 4	36·37
12	36·38

β Piscis Australis.	
Sept. 20	22. 23. 56·18
Oct. 3	56·29
26	56·17

ϑ¹ Cephei.	
Sept. 18	22. 24. 13·16

ϑ² Cephei.	
Sept. 18	22. 24. 14·22
Nov. 13	14·32

28 Cephei.	
Nov. 21	22. 25. 39·06

Groombridge 3804.	
Sept. 16	22. 26. 33·80
19	33·98
27	33·76
Oct. 1	33·89

η Aquarii.	
Sept. 16	22. 28. 31·20
Oct. 3	31·26
7	31·25
26	31·23

η Aquarii *continued.*	
Nov. 7	22. 28. 31·28
13	31·29
Dec. 6	31·30

ρ Cephei.	
Nov. 21	22. 28. 40·76

Radcliffe 5776.	
Sept. 20	22. 29. 10·11
Oct. 1	9·69

Groombridge 3834.	
Sept. 12	22. 29. 55·35
Oct. 7	55·35
10	55·86
26	55·74
Nov. 6	55·36
7	55·71
8	55·70
Dec. 4	55·61
12	55·73

31 Cephei.	
Sept. 19	22. 32. 28·98
Nov. 21	29·05

11 Lacertæ.	
Sept. 19	22. 34. 41·33
23	41·11
27	41·11
Nov. 6	41·17

ζ Pegasi.	
Aug. 2	22. 34. 49·67
12	49·71
13	49·72
23	49·76
Sept. 28	49·83

ζ Pegasi *continued.*	
Oct. 3	22. 34. 49·79
Nov. 19	49·70
23	49·76
Dec. 4	49·75

19 Piscis Australis.	
Aug. 6	22. 34. 57·80
Sept. 16	57·77
Oct. 7	57·83
10	57·81
26	57·84
28	57·96

μ Pegasi.	
Sept. 6	22. 43. 35·14
16	35·13
18	35·18
19	35·11
Oct. 1	35·13
3	35·22
Nov. 13	35·22
19	35·12

ι Cephei.	
Sept. 12	22. 44. 57·05
18	57·20
23	57·10
Oct. 1	57·25
26	57·15

λ Aquarii.	
July 23	22. 45. 40·42
Aug. 20	40·43
Sept. 6	40·48
16	40·38
Oct. 10	40·44
Nov. 19	40·48
21	40·47
Dec. 4	40·47

Fomalhaut.	
Aug. 23	22. 50. 17·60
Oct. 26	17·60
Nov. 6	17·80
7	17·73
8	17·82
21	17·72
23	17·70

81 Aquarii.	
Dec. 4	22. 54. 28·80

Piazzi XXII. 282.	
Oct. 26	22. 56. 7·83

α Pegasi.	
Feb. 7	22. 58. 8·24
April 23	8·20
Sept. 3	8·22
18	8·33

Bradley 3067.	
Aug. 27	22. 58. 56·54
Sept. 16	56·79

Var. (R) Pegasi.	
Oct. 3	22. 59. 58·14
Nov. 6	58·08
23	58·34

56 Pegasi.	
Sept. 3	23. 0. 38·15
6	38·18
18	38·22

5 Andromedæ.	
Aug. 27	23. 1. 43·24

ϖ Cephei.	
Nov. 21	23. 3. 40·61

φ Aquarii.	
Sept. 12	23. 7. 26·14
Nov. 6	26·06

γ Piscium.	
Aug. 6	23. 10. 16·13
Oct. 25	16·18
26	16·29
Nov. 21	16·31
23	16·21

ψ² Aquarii.	
Nov. 6	23. 10. 59·45
7	59·44

ο Cephei.	
Oct. 17	23. 13. 10·33
26	10·54
Nov. 6	10·41
8	10·28
21	10·70

Bradley 3094.	
Sept. 20	23. 13. 27·22
23	27·25
28	27·31

12 Andromedæ.	
Aug. 27	23. 14. 28·34
Sept. 18	28·52

b Aquarii.	
Sept. 28	23. 15. 59·07
Oct. 3	58·95
17	58·92
25	58·89
26	58·91

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Bradley 3107.

	h m s
Aug. 27	23. 16. 8·35

κ Piscium.

Aug. 27	23. 20. 6·71
Sept. 5	6·85
6	6·80
Oct. 25	6·82
Nov. 21	6·81
Dec. 4	6·81

Bradley 3125.

Oct. 17	23. 21. 40·16

71 Pegasi.

Aug. 27	23. 26. 48·57
Oct. 17	48·64
25	48·68

Bradley 3147.

Mar. 15	23. 27. 50·26
16	50·80
April 3	50·12
Oct. 3	49·92

16 Piscium.

	h m s
Dec. 4	23. 29. 35·76

Piazzi XXIII. 133.

Aug. 27	23. 30. 45·54
Sept. 18	45·72
28	45·77
Oct. 3	45·59
17	45·64

ι Andromedæ.

Nov. 6	23. 31. 37·07
Dec. 4	37·26

ι Piscium.

Aug. 27	23. 33. 6·55
Oct. 19	6·52
Nov. 6	6·57
11	6·54

γ Cephei.

Mar. 30	23. 33. 54·36
Oct. 25	55·01
26	54·91
Nov. 8	54·79
11	54·78

λ Piscium.

	h m s
Oct. 10	23. 35. 15·51

Bradley 3166.

Sept. 5	23. 41. 34·18
Oct. 19	34·26

δ Sculptoris.

Oct. 2	23. 41. 59·53
4	59·59
Dec. 4	59·60

21 Piscium.

Nov. 7	23. 42. 38·93
8	38·83

Piazzi XXIII. 200.

Sept. 18	23. 43. 22·88
28	22·95
Oct. 3	22·82

83 Pegasi.

Sept. 18	23. 45. 54·91
20	54·81

Groombridge 4163.

	h m s
Oct. 19	23. 48. 23·67
Nov. 8	23·35
11	23·58

Bradley 3187.

Sept. 28	23. 50. 16·23

ψ Pegasi.

Oct. 3	23. 50. 59·13
19	59·07

27 Piscium.

Sept. 13	23. 51. 51·98
14	51·78

ω Piscium.

Sept. 18	23. 52. 28·95
27	28·93
Oct. 4	28·86

Bradley 3193.

	h m s
Sept. 20	23. 53. 57·61
Oct. 1	57·60

29 Piscium.

Nov. 7	23. 55. 0·56
8	0·35

2 Ceti.

Sept. 5	23. 56. 55·45
Dec. 18	55·55

33 Piscium.

Sept. 13	23. 58. 31·62
14	31·57

Bradley 3212.

Jan. 11	23. 59. 42·86
Sept. 27	42·94
Oct. 1	42·85
19	42·78

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ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF ZENITH DISTANCE

WITH THE TRANSIT-CIRCLE,

AND

COMPUTATIONS

OF

GEOCENTRIC NORTH POLAR DISTANCE.

1867.

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ZENITH DISTANCES OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF NORTH POLAR DISTANCE,

DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle-Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Jan. 13	1	ε Piscium	E	4·256	·798	·272	·318	·506	·412	20·460		38·64	44. 17. 17·72	29·61	27·2	31·5	58·80	82. 49. 38·32
	2	ζ Piscium	E	2·668	·227	·662	·746	·934	·847	19·944		46·36	44. 35. 25·44	,,	,,		59·42	83. 7. 46·66
	3	☽ S. L.	E	0·519	·082	·522	·622	·847	·724	19·768	2	26·54						
	4	☽ S. L.	E	,,	,,	,,	,,	,,	,,	19·712	3	26·84						
	5	☽ S. L.	E	,,	,,	,,	,,	,,	,,	19·677	4	27·77	45. 23. 6·08	,,	27·2		1. 1·10	82. 58. 7·56
	6	☽ S. L.	E	,,	,,	,,	,,	,,	,,	19·578	5	26·83						
	7	☽ S. L.	E	,,	,,	,,	,,	,,	,,	19·447	7	27·02						
	8	α Piscium	E	2·851	·386	·879	·925	·122	·032	19·415		42·01	49. 20. 21·09	,,	,,		1. 10·15	87. 52. 53·04
	9	ζ¹ Ceti	E	2·062	·614	·075	·146	·338	·250	19·188	1	48·08	43. 14. 27·72	,,	,,		56·69	81. 46. 46·21
Jan. 14	10	τ Andromedæ ...R.	C	4·872	·454	·876	·987	·220	·102	26·210	1	10·20	11. 34. 11·47	29·76	26·0		12·45	50. 5. 45·72
	11	τ Andromedæ	C	1·273	·838	·226	·344	·570	·450	20·341	7	31·89	11. 34. 10·22	,,	,,			50. 5. 44·47
	12	α Piscium	C	2·020	·635	·058	·139	·355	·224	21·110		43·53	49. 20. 21·86	,,	25·0		1. 10·84	87. 52. 54·50
	13	κ Arietis	C	4·521	·110	·530	·600	·838	·671	19·920		40·12	29. 27. 18·45	,,	,,		34·40	67. 59. 14·65
	14	ξ¹ Ceti	C	1·920	·554	·935	·034	·261	·102	19·500		49·55	43. 14. 27·88	,,	,,		57·25	81. 46. 46·93
	15	Bradley 325	C	4·530	·081	·510	·604	·860	·700	18·380		54·70	4. 46. 33·03	,,	23·9		5·10	43. 17. 59·93
	16	11 Trianguli	C	3·188	·795	·205	·284	·530	·378	20·124		26·03	20. 16. 4·36	,,	,,		22·55	58. 47. 48·71
	17	☽ S. L.	C	4·130	·790	·170	·263	·460	·318	20·257	2	24·93						
	18	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·203	3	25·02						
	19	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·164	4	25·60	41. 22. 3·58	29·78	21·8	26·0	54·02	78. 59. 17·52
	20	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·104	5	25·59						
	21	☽ S. L.	C	,,	,,	,,	,,	,,	,,	19·964	7	25·12						
	22	μ Ceti	C	1·876	·504	·882	·971	·210	·035	20·191		6·62	41. 54. 44·95	,,	,,		55·06	80. 27. 2·81
	23	47 Cephei .....R.	C	2·016	·574	·045	·113	·311	·216	19·086	3	42·29	−27. 24. 20·62	,,	,,		31·83	11. 6. 29·35
	24	47 Cephei	C	1·971	·536	·980	·044	·326	·176	21·850		1·35	−27. 24. 20·32	,,	,,			11. 6. 29·65
	25	Wire (Nadir Obs.) R.	C	2·156	·763	·154	·262	·494	·380	20·094		21·54	....					....
	26	δ Arietis	C	2·034	·625	·038	·139	·344	·210	19·916		7·41	32. 14. 45·74	,,	20·3		38·84	70. 46. 46·38
	27	*l* Persei	C	4·726	·320	·706	·796	·060	·884	20·176		0·47	8. 37. 38·80	,,	,,		9·35	47. 9. 9·95
Jan. 15	28	⊙ N. L.	D	0·722	·307	·732	·833	·034	·912	20·420	1	2·66	72. 18. 40·99	29·79	29·6	31·5	3. 7·34	111. 9. 19·20
	29	⊙ S. L.	D	3·288	·880	·291	·381	·568	·468	20·095		29·55	72. 51. 7·88	,,	,,		3. 13·50	111. 9. 16·82
	30	☽ S. L.	D	3·700	·292	·679	·771	·017	·886	19·436	1	31·67						
	31	☽ S. L.	D	,,	,,	,,	,,	,,	,,	19·410	2	32·11	37. 56. 10·37	29·76	27·4	28·0	47·23	75. 35. 26·91
	32	☽ S. L.	D	,,	,,	,,	,,	,,	,,	19·375	3	32·35						
	33	Wire (Nadir Obs.) R.	D	0·782	·358	·764	·879	·087	·027	22·980		21·85	....					....
	34	γ Tauri	D	0·949	·522	·935	·020	·222	·113	22·312	7	9·55	36. 9. 47·88	,,	27·3		44·29	74. 41. 53·97
Jan. 16	35	Wire (Nadir Obs.) R.	JC	0·981	·572	·964	·067	·286	·208	22·564		21·64	....					....
Jan. 17	36	Groomb. 2283 S.P..	E	4·841	·404	·892	·932	·221	·057	21·890		0·53	−40. 46. 21·14	29·34	27·4	29·0	51·50	− 2. 15. 50·84
	37	Wire (Nadir Obs.) R.	E	1·946	·554	·916	·047	·294	·166	20·550		21·87	....					....

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
3, &c.	− 2·42	41. 24·13	15. 57·21					1	− 2·36	15	+ 7·49				
17, &c.	− 2·19	38. 53·02	16. 8·80					2	− 2·93	16	+ 2·49				
28	− 0·11	8·63	16. 17·70					8	− 6·55	22	− 5·68				
29		8·66						9	− 4·82	23, 24	+ 12·09				
30, &c.	− 1·78	36. 33·06	16. 19·38					10, 11	+ 7·24	26	− 3·48				
								12	− 6·62	27	+ 3·22				
								13	+ 0·23	34	− 7·49				
								14	− 4·89	36	− 11·57				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z.D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

3, 17, 30. Corrections of −0″·08, −0″·06, −0″·05, have been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

12. South following star observed.

13. Very faint; extremely foggy.

28, 29. The microscopes were read by W and H C. Very tremulous.

30, &c. Very cloudy.

34. Very faint.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	″	° ′ ″
Jan. 18	1	Wire (Nadir Obs.) R.	C	2·464	·094	·488	·590	·848	·690	19·406		21·32	....					....
	2	η Geminorum.....	C	3·430	·020	·461	·526	·780	·604	18·944		5·18	28. 55. 43·51	29·56	26·6		33·33	67. 27. 38·64
	3	μ Geminorum.....	C	4·334	·920	·371	·436	·690	·514	22·724		52·83	28. 53. 31·16	,,	,,		33·28	67. 25. 26·24
	4	14 Geminorum	C	1·264	·865	·295	·354	·612	·434	22·576		39·57	29. 45. 17·90	,,	,,		34·47	68. 17. 14·17
	5	Uranus.....	C	4·160	·775	·205	·276	·514	·350	22·787		44·80	27. 48. 23·13	,,	,,		31·80	66. 20. 16·50
	6	ξ Canis Majoris....	C	1·795	·450	·850	·934	·199	·011	20·356		8·89	74. 44. 47·22	29·56	26·2		3. 38·17	113. 19. 47·19
	7	☽ S. L.....	C	3·011	·624	·025	·114	·328	·173	19·946	2	10·48						
	8	☽ S. L.....	C	,,	,,	,,	,,	,,	,,	19·972	3	10·26						
	9	☽ S. L.....	C	,,	,,	,,	,,	,,	,,	20·005	4	10·33	34. 5. 48·73	,,	25·8		40·88	72. 47. 29·54
	10	☽ S. L.....	C	,,	,,	,,	,,	,,	,,	20·036	5	10·40						
	11	☽ S. L.....	C	,,	,,	,,	,,	,,	,,	20·090	7	10·51						
	12	ζ Geminorum.....	C	4·411	·020	·436	·510	·758	·549	20·500		51·17	30. 42. 29·50	,,	24·3		35·99	69. 14. 27·29
	13	47 Geminorum	C	1·395	·024	·406	·516	·730	·560	19·760		24·92	24. 24. 3·25	,,	,,		27·50	62. 55. 52·55
	14	δ Geminorum.....	C	0·900	·522	·945	·025	·271	·125	22·280		9·96	29. 14. 48·29	,,	,,		33·93	67. 46. 44·02
	15	Mars N.L.....	C	2·846	·483	·864	·967	·191	·016	22·604	2	19·54	24. 56. 57·87	,,	,,		28·19	63. 28. 50·68
	16	Mars S.L.....	C	,,	,,	,,	,,	,,	,,	23·224	6	36·28	24. 57. 14·61	,,	,,		28·20	63. 28. 50·34
Jan. 19	17	Wire (Nadir Obs.) R.	W	1·505	·112	·525	·628	·889	·798	21·412		22·15	....					....
	18	56 Tauri	W	1·734	·301	·739	·820	·062	·930	23·386		31·73	30. 1. 10·06	29·75	26·7		35·06	68. 33. 6·92
	19	70 Tauri	W	1·708	·279	·682	·772	·038	·860	21·033	7	18·56	35. 49. 56·89	,,	,,		43·81	74. 22. 2·50
	20	ν Geminorum.....	D	4·239	·778	·241	·292	·526	·389	20·090	5	26·73	24. 17. 5·06	29·77	28·8		27·28	62. 48. 54·14
	21	☽ S. L.....	D	2·491	·080	·478	·575	·789	·630	20·883	1	8·45						
	22	☽ S. L.....	D	,,	,,	,,	,,	,,	,,	20·945	2	8·48						
	23	☽ S. L.....	D	,,	,,	,,	,,	,,	,,	20·999	3	8·34						
	24	☽ S. L.....	D	,,	,,	,,	,,	,,	,,	21·040	4	7·85	35. 30. 46·68	29·78	28·4		43·18	73. 11. 28·56
	25	☽ S. L.....	D	,,	,,	,,	,,	,,	,,	21·117	5	8·51						
	26	☽ S. L..... ..	D	,,	,,	,,	,,	,,	,,	21·170	6	8·31						
	27	☽ S. L.....	D	,,	,,	,,	,,	,,	,,	21·221	7	8·51						
Jan. 21	28	Wire (Nadir Obs.) R.	E	2·053	·645	·972	·162	·440	·326	20·322		22·22	....					....
Jan. 22	29	Wire (Nadir Obs.) R.	C	2·043	·671	·060	·150	·430	·244	20·300		21·57	....					....
Jan. 25	30	α Cassiopeiæ	HC	1·309	·728	·242	·249	·522	·482	22·159		24·42	−4. 19. 57·25	29·58	47·1	48·0	4·38	34. 11. 20·17
	31	η Cassiopeiæ	HC	3·985	·405	·936	·921	·194	·147	20·492		19·57	−5. 38. 2·10	,,	,,		5·70	32. 53. 14·00
	32	78 Piscium.....	HC	1·991	·367	·933	·932	·151	·107	20·896	5	27·76	20. 10. 6·09	29·59	46·0		21·29	58. 41. 49·18
	33	63 Andromedæ	HC	3·030	·463	·979	·979	·251	·181	20·678		26·74	1. 56. 5·07	29·62	44·4		1·97	40. 27. 28·84
	34	66 Andromedæ	HC	1·928	·332	·876	·865	·115	·071	20·973		26·78	1. 30. 5·11	,,	,,		1·53	40. 1. 28·44
	35	15 Trianguli	HC	2·549	·963	·521	·493	·742	·693	23·410	1	20·02	17. 21. 58·35	29·63	44·4		18·21	55. 53. 38·36
	36	Piazzi II. 117	HC	,,	,,	,,	,,	,,	,,	19·039	5	9·06	17. 19. 47·39	,,	,,		18·17	55. 51. 27·36
	37	Wire (Nadir Obs.) R.	HC	0·832	·275	·778	·800	·038	·989	23·056		22·28	....					....
	38	47 Cephei	HC	1·970	·374	·925	·916	·170	·125	21·977		59·63	−27. 24. 22·04	,,	,,		30·19	11. 6. 29·57

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
5		0·23						2	− 9·97	19	− 7·75	36	+ 2·63		
7, &c.	+ 0·44	33. 47·98	16. 33·89					3	− 10·20	20	− 11·96	38	+ 13·05		
15, 16	− 0·03	5·73	8·55					4	− 10·46	30	+ 12·21				
21, &c.	+ 1·22	34. 53·25	16. 29·85					6	− 15·91	31	+ 12·43				
								12	− 11·64	32	+ 4·62				
								13	− 11·27	33	+ 8·05				
								14	− 11·88	34	+ 7·91				
								18	− 5·81	35	+ 2·62				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·347; from January 14, + 0″·417; from January 21, + 0″·548.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 7′. 39″·08; from January 14, + 7′. 38″·33.

7, &c. Limb very rugged.
16. Computed distance of limb from illuminated edge, 3°. 21′; correction applied, + 0″·01.
19. Very cloudy.
32. The reading of each microscope has been decreased 1ʳ.
35. The reading of microscope F was set down 2ʳ·893.
14. Cloudy.
21, &c. The microscopes were read by W.
34. Very faint.
37. Reflected image of the wire scarcely visible.
15, 16. Very faint; cloudy.
18. Extremely faint.
35, 36. Stars of equal magnitude.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Feb. 2	1	Mars N. L.	L	2·313	·729	·256	·296	·462	·408	21·637	2	11·12	24. 35. 49·83	30·38	39·4		27·62	63. 7. 41·88
	2	Mars S. L.	L	,,	,,	,,	,,	,,	,,	22·314	5	29·69	24. 36. 8·40	,,	,,		27·63	63. 7. 44·88
	3	A Geminorum	L	0·812	·244	·777	·815	·003	·962	23·300		28·42	26. 10. 7·13	,,	38·8		29·68	64. 41. 58·61
Feb. 4	4	Wire (Nadir Obs.) R.	C	2·267	·743	·265	·283	·481	·446	19·984		21·08	....					....
	5	Mars N. L.	C	3·575	·014	·544	·576	·730	·694	19·506	7	24·55	24. 36. 3·26	29·46	40·0		26·75	63. 7. 54·78
	6	47 Geminorum	C	1·605	·050	·570	·600	·775	·729	19·476		23·63	24. 24. 2·34	,,	,,		26·51	62. 55. 50·65
	7	Bradley 1061	C	0·294	·740	·292	·326	·534	·483	19·699		11·59	78. 12. 50·30	,,	39·6		4. 33·33	116. 48. 45·43
	8	∂^3 Canis Minoris	C	0·431	·909	·434	·455	·640	·593	20·790		52·02	47. 53. 30·73	,,	,,		1. 4·63	86. 25. 57·16
	9	Bradley 1107	C	2·304	·790	·301	·340	·504	·455	21·522		8·62	45. 55. 47·33	29·46	39·5		1. 0·36	84. 28. 9·49
	10	11 Canis Minoris	C	4·843	·285	·823	·823	·004	·943	20·098		0·34	40. 22. 39·05	,,	,,		49·71	78. 54. 50·56
	11	6 Puppis	C	1·970	·462	·004	·006	·174	·134	20·562		20·12	68. 19. 58·83	,,	,,		2. 26·19	106. 53. 46·82
	12	85 Geminorum	C	0·913	·391	·911	·934	·130	·057	21·429		39·92	31. 14. 18·63	,,	,,		35·47	69. 46. 15·90
	13	28 Monocerotis	C	0·857	·330	·865	·877	·057	·009	21·214		30·04	52. 29. 8·75	,,	,,		1. 16·06	91. 1. 46·61
	14	14 Puppis	C	3·762	·230	·760	·795	·960	·896	21·584		39·40	70. 47. 18·11	29·46	39·0		2. 46·50	109. 21. 26·41
	15	19 Puppis	C	0·960	·460	·964	·986	·180	·107	20·601		18·61	63. 58. 57·32	,,	,,		1. 59·40	102. 32. 18·52
	16	ϕ^1 Cancri	C	0·330	·811	·330	·375	·556	·480	21·330		2·36	23. 8. 41·07	,,	,,		25·03	61. 40. 27·90
	17	Venus N.C.	K	2·378	·856	·391	·420	·572	·525	21·924	1	25·97	70. 31. 4·68	29·40	40·9		2. 43·06	109. 5. 10·12
Feb. 6	18	Wire (Nadir Obs.) R.	JC	1·922	·358	·866	·900	·101	·093	20·777		21·55	....					....
	19	ζ Persei	JC	0·876	·313	·850	·866	·086	·034	21·180		30·24	19. 59. 8·95	28·90	40·2		20·84	58. 30. 51·59
	20	Piazzi III. 249	JC	0·626	·073	·603	·621	·798	·746	21·824	6	31·62	34. 29. 10·33	,,	,,		39·34	73. 1. 11·47
	21	Groombridge 804	JC	1·934	·373	·879	·922	·142	·081	20·343		9·55	9. 39. 48·26	,,	,,		9·76	48. 11. 19·82
	22	54 Persei	JC	0·856	·308	·840	·877	·076	·039	20·503		9·72	17. 13. 48·43	28·90	40·7		17·75	55. 45. 27·98
	23	58 Tauri	JC	3·583	·048	·542	·559	·761	·703	20·619		58·50	36. 41. 37·21	,,	,,		42·63	75. 13. 41·64
	24	Mars N. L.	JC	3·716	·160	·673	·711	·894	·827	20·624	2	8·25	24. 36. 46·96	28·96	40·1		26·31	63. 8. 37·56
	25	Mars S. L.	JC	,,	,,	,,	,,	,,	,,	21·127		22·05	24. 37. 0·76	,,	,,		26·31	63. 8. 36·38
	26	47 Geminorum	JC	1·016	·460	·994	·027	·203	·156	20·688		23·97	24. 24. 2·68	,,	,,		26·05	62. 55. 50·53
	27	52 Geminorum	JC	3·684	·148	·667	·703	·906	·827	20·248		55·39	26. 21. 34·10	,,	,,		28·45	64. 53. 24·35
	28	65 Aurigæ	JC	0·141	·611	·114	·162	·390	·314	20·526		26·58	14. 28. 5·29	28·97	40·0		14·83	52. 59. 41·92
	29	70 Geminorum	JC	4·737	·200	·732	·754	·981	·900	20·826	5	17·51	16. 7. 56·22	,,	,,		16·62	54. 39. 34·64
	30	κ Geminorum	JC	2·602	·075	·606	·625	·826	·753	20·313		51·31	26. 45. 30·02	,,	,,		28·97	65. 17. 20·79
	31	4 Puppis	JC	3·753	·245	·756	·778	·967	·908	19·665	5	42·01	65. 41. 20·72	28·89	39·8		2. 6·20	104. 14. 48·72
	32	Thetis	JC	2·671	·130	·635	·659	·864	·793	23·099	5	15·74	30. 36. 54·45	,,	,,		33·91	69. 8. 47·58
	33	28 Monocerotis	JC	0·662	·130	·653	·680	·866	·811	21·670		31·32	52. 29. 10·03	,,	,,		1. 14·54	91. 1. 47·33
	34	Astræa	JC	1·983	·459	·954	·983	·172	·114	23·872		56·96	33. 21. 35·67	,,	,,		37·74	71. 53. 30·92
	35	Euphrosyne	JC	1·073	·508	·033	·063	·294	·247	24·076	5	7·63	— 9. 50. 13·34	29·02	39·5		9·99	28. 40. 59·01
	36	22 Puppis	JC	4·691	·172	·671	·698	·884	·827	24·536	6	2·31	64. 4. 41·02	,,	,,		1. 57·99	102. 38. 0·81
	37	Bradley 1228	JC	4·033	·508	·014	·043	·220	·167	21·486		52·56	31. 7. 31·27	,,	,,		34·79	69. 39. 27·86
	38	Irene	JC	1·451	·930	·433	·476	·684	·615	22·458	5	44·22	21. 50. 22·93	29·04	39·6		23·10	60. 22. 5·30
	39	β Ophiuchi	P	2·084	·558	·057	·104	·264	·223	20·550	5	25·06	46. 50. 3·77	29·37	39·2	43·0	1. 2·14	85. 22. 27·71

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
1, 2	0·00	5·17	7·80					3	— 11·27	13	— 14·97	23	— 8·45	36	— 15·47
5	0·00	5·09	8·06					6	— 10·51	14	— 16·02	26	— 10·41	37	— 13·31
17	+ 0·04	15·07	15·69					7	— 18·48	15	— 15·49	27	— 10·91	39	+ 1·75
24, 25	+ 0·01	5·01	7·50					8	— 14·69	16	— 12·44	28	— 8·85		
32	— 0·04	2·58						9	— 14·42	19	— 1·73	29	— 9·82		
34		4·28						10	— 13·73	20	— 7·26	30	— 11·75		
35	+ 0·07	0·86						11	— 16·46	21	+ 0·74	31	— 16·72		
38	— 0·06	2·53						12	— 12·69	22	— 1·83	33	— 15·19		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4r·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

2. Computed distance of limb from illuminated edge, 3°. 50′; correction applied, +0″·02.
5. A correction of +0″·46, deduced from a comparison with ten neighbouring observations, has been applied to the N.A. Semidiameter.
17. A correction of +0″·79 has been applied to the N.A. Semidiameter. Computed distance of cusp from N. L., 4°. 4′; correction applied, −0″·04.
18. Image tremulous owing to very high wind.
22, 23, 24, 25, 26, 30. Cloudy.
25. Computed distance of limb from illuminated edge, 3°. 48′; correction applied, +0″·02.
29. Very cloudy.
34. The reading of the telescope-micrometer has been decreased 1r.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Feb. 6	1	Venus S. L.	P	0·924	·394	·925	·973	·130	·094	20·592	1	17·43	70. 38. 56·14	29·39	39·8	42·8	2. 44·54	109. 12. 33·30
	2	Venus N. C.	P	,,	,,	,,	,,	,,	,,	19·654	2	49·37	70. 38. 28·08	,,	,,		2. 44·48	109. 12. 34·16
	3	α Lyræ	P	1·150	·616	·094	·168	·376	·294	19·864		8 00	12. 48. 46·71	29·41	40·2		13·26	51. 20. 21·77
	4	α Aquilæ	P	3·793	·298	·761	·807	·992	·936	20·000	5	54·28	42. 56. 32·99	29·48	41·0		54·26	81. 28. 49·05
Feb. 7	5	α Pegasi	P	0·812	·270	·756	·809	·998	·941	20·000	5	49·77	36. 58. 28·48	29·59	43·7		43·83	75. 30. 34·11
	6	Wire (Nadir Obs.) R.	P	1·772	·255	·733	·787	·004	·950	20·963		19·37	....					....
Feb. 8	7	59 Persei	E	3·496	·896	·384	·449	·665	·634	21·587		20·57	8. 21. 59·28	29·40	48·8	51·0	8·42	46. 53. 29·50
	8	Bradley 661	E	0·382	·786	·314	·378	·576	·556	21·038		54·70	15. 3. 33·41	,,	,,		15·41	53. 35. 10·62
	9	Wire (Nadir Obs.) R.	E	2·070	·519	·008	·092	·266	·254	20·420		20·91	....					....
	10	Venus N. C.	C	0·474	·934	·500	·511	·676	·646	23·129	2	4·58	70. 44. 43·29	29·77	45·5		2. 45·58	109. 18. 50·45
	11	Venus S. L.	C	,,	,,	,,	,,	,,	,,	24·188	6	34·09	70. 45. 12·80	,,	,,		2. 45·65	109. 18. 51·84
	12	α Aquilæ	C	1·642	·070	·594	·639	·804	·770	24·514	5	54·10	42. 56. 32·81	29·84	48·6		54·07	81. 28. 48·68
Feb. 9	13	⊙ S. L.	C	3·250	·690	·208	·232	·419	·384	19·700	2	10·99	66. 25. 49·70	29·88	51·7	52·5	2. 11·82	104. 43. 0·54
	14	⊙ N. L.	C	0·771	·231	·732	·770	·966	·932	19·984		47·67	65. 53. 26·38	,,	,,		2. 8·54	104. 43. 2·98
	15	Wire (Nadir Obs.) R.	C	2·192	·616	·161	·183	·375	·352	20·186		20·86	....					....
Feb. 10	16	☽ S. L.	JC	0·886	·307	·829	·851	·028	·014	21·776	7	51·89	42. 44. 30·60	29·84	50·5	50·5	53·48	80. 21. 18·53
	17	Venus S. L.	D	1·458	·857	·446	·451	·623	·598	22·171	1	34·81	70. 50. 13·52	29·91	40·7	44·2	2. 48·89	109. 23. 56·46
	18	Venus N. C.	D	,,	,,	,,	,,	,,	,,	21·248	2	7·21	70. 49. 45·92	,,	,,		2. 48·82	109. 23. 56·39
Feb. 11	19	⊙ S. L.	D	3·663	·061	·602	·609	·806	·788	21·039	1	14·60	65. 46. 53·36	30·04	44·9	47·5	2. 10·39	104. 4. 3·12
	20	⊙ N. L.	D	1·314	·721	·258	·285	·443	·450	21·160		53·79	65. 14. 32·55	,,	,,		2. 7·22	104. 4. 7·57
	21	☽ S. L.	D	1·020	·415	·957	·972	·152	·128	21·565	1	43·33						
	22	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·532	2	43·68						
	23	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·497	3	44·04						
	24	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·454	4	44·19	39. 9. 22·56	30·13	44·1	46·3	48·22	76. 48. 28·39
	25	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·407	5	44·27						
	26	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·333	6	43·61						
	27	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·275	7	43·46						
	28	f Tauri	D	1·414	·797	·365	·364	·543	·519	20·370		36·24	38. 59. 15·00	,,	43·8		47·96	77. 31. 24·76
	29	Wire (Nadir Obs.) R.	D	1·377	·777	·320	·332	·532	·524	21·935		21·24	....					....
	30	λ Tauri	D	2·799	·178	·728	·741	·918	·895	21·559		35·97	39. 21. 14·73	30·14	43·6	45·5	48·63	77. 53. 25·16
	31	54 Persei	D	0·929	·309	·884	·912	·098	·068	20·408		8·98	17. 13. 47·74	,,	43·4		18·41	55. 45. 27·95
	32	55 Persei	D	0·205	·600	·186	·192	·391	·360	22·583	1	31·63	17. 39. 10·39	,,	,,		18·89	56. 10. 51·08
	33	56 Persei	D	0·622	·027	·616	·618	·808	·778	22·093		41·09	17. 49. 19·85	,,	,,		19·09	56. 21. 0·74
	34	b Tauri	D	4·757	·158	·697	·717	·898	·861	20·988		20·08	38. 42. 58·84	,,	43·2		47·58	77. 15. 8·22
Feb. 12	35	Wire (Nadir Obs.) R.	E	2·046	·470	·992	·060	·213	·232	20·496		21·13	....					....

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
1, 2	+ 0·03	14·68	14·50	21, &c.	— 1·89	36. 59·26	16. 4·86	3	— 2·73	31	— 2·19				
10, 11	+ 0·03	14·31	14·10					4	+ 2·27	32	— 2·14				
13		8·28						5	+ 0·88	33	— 2·20				
14	— 0·19	8·24	16. 14·50					7	+ 0·10	34	— 9·57				
16	— 2·25	39. 29·39	15. 57·89					8	— 2·39						
17, 18	+ 0·02	13·95	13·80					12	+ 2·01						
19		8·23						28	— 7·83						
20	— 0·19	8·20	16 14·20					30	— 8·92						

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·451; from February 4, + 0″·389; from February 11, + 0″·361.
Correction for Telescope-Micrometer = Micrometer Reading × 20″·602
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 7′. 38″·71; from February 11, + 7′. 38″·76.

2. Computed distance of limb from illuminated cusp, 3°. 7′; correction applied, − 0″·02.
6. This observation has not been used in subsequent sections.
10. Computed distance of limb from illuminated cusp, 2°. 17′; correction applied, − 0″·01.
13, 14, 19, 20. The microscopes were read by W and H C.
16. Extremely cloudy.
18. Computed distance of limb from illuminated cusp, 1°. 15′; correction insensible.
16, 21. A correction of − 0″·07 has been applied in each case to the Geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Feb. 20	1	Piazzi VI. 292 ..R.	E	9·794	·167	·743	·786	·925	·922	15·615	3	36·17	−31. 10. 14·93	30·45	47·4		35·97	7. 20. 31·90
	2	Piazzi VI. 292	E	1·772	·125	·693	·705	·906	·912	20·639		5·93	−31. 10. 15·31	,,	,,			7. 20. 30·52
	3	δ Geminorum....R.	E	0·616	·987	·568	·612	·799	·819	23·800	1	31·27	29. 14. 49·97	,,	46·4		33·37	67. 46. 45·14
	4	δ Geminorum.....	E	1·992	·362	·934	·974	·136	·122	20·307	6	9·42	29. 14. 48·18	,,	,,			67. 46. 43·35
	5	Wire (Nadir Obs.) R.	E	2·157	·534	·070	·108	·297	·312	20·318		20·55	....					....
Feb. 21	6	Wire (Nadir Obs.) R.	C	1·780	·200	·756	·754	·950	·940	21·053		20·84	....					....
Feb. 22	7	Wire (Nadir Obs.) R.	D	1·115	·499	·059	·076	·278	·261	22·489		21·48	....					....
	8	☽ S. L.....	S	1·873	·229	·836	·826	·985	·995	26·219	1	4·52						
	9	☽ S. L.....	S	,,	,,	,,	,,	,,	,,	26·545	5	3·94	60. 12. 42·99	30·34	45·8		1. 43·52	97. 42. 27·42
	10	κ Virginis.....	S	3·305	·673	·273	·251	·435	·423	20·176	5	25·74	61. 6. 4·50	,,	,,		1. 47·32	99. 39. 13·62
	11	λ Virginis	S	3·663	·053	·629	·609	·782	·764	21·399	5	23·79	64. 12. 2·55	,,	,,		2. 2·41	102. 45. 26·76
Feb. 23	12	⊙ N. L.....	JC	0·465	·878	·430	·437	·642	·621	21·317	2	7·59	61. 3. 46·35	30·42	50·3	51·5	1. 46·45	99. 52. 58·42
	13	⊙ S. L.	JC	2·838	·219	·789	·790	·973	·950	21·094		24·72	61. 36. 3·48	,,	,,		1. 48·83	99. 52. 54·49
	14	Bradley 616.....	JC	0·600	·981	·537	·554	·756	·738	20·847		0·92	8. 43. 39·68	30·41	46·4		9·14	47. 15. 10·62
	15	*d* Tauri	JC	1·037	·434	·982	·988	·166	·164	22·317		10·99	41. 34. 49·75	,,	,,		52·77	80. 7. 4·32
	16	c^1 Tauri.....	JC	4·789	·194	·738	·750	·944	·913	22·024		53·09	39. 13. 31·85	,,	,,		48·56	77. 45. 42·21
	17	59 Persei	JC	4·211	·578	·132	·134	·344	·323	20·156		20·97	8. 21. 59·73	,,	,,		8·76	46. 53. 30·29
	18	107 Tauri	JC	3·633	·018	·595	·584	·766	·744	21·586		28·24	31. 47. 7·00	30·41	45·2		36·97	70. 19. 5·77
	19	68 Eridani.....	JC	0·585	·980	·567	·566	·730	·707	24·309		42·59	56. 5. 21·35	,,	,,		1. 28·55	94. 38. 11·70
	20	κ Leporis	JC	0·416	·839	·400	·394	·555	·553	19·814		19·46	64. 32. 58·22	,,	,,		2. 4·76	103. 6. 24·78
	21	β Tauri .....R.	JC	2·532	·941	·491	·524	·734	·727	21·897	2	33·02	22. 58. 48·22	30·41	44·3			61. 30. 35·37
	22	β Tauri	JC	0·227	·630	·216	·231	·394	·377	21·864	5	9·51	22. 58. 48·27	,,	,,		25·35	61. 30. 35·42
	23	ν Orionis	JC	3·002	·396	·981	·983	·137	·122	21·449		46·02	58. 51. 24·78	,,	,,		1. 38·63	97. 24. 25·21
	24	Bradley 801 (2d Star)	JC	4·658	·059	·653	·636	·788	·773	21·129		18·38	57. 32. 57·14	,,	,,		1. 33·76	96. 5. 52·70
	25	Wire (Nadir Obs.) R.	JC	2·021	·443	·966	·007	·182	·178	20·574		21·15	....					....
	26	134 Tauri	JC	3·264	·643	·219	·217	·406	·374	21·427		1·25	38. 51. 40·01	30·41	43·3		48·24	77. 23. 50·05
	27	f^1 Orionis.....	JC	0·748	·141	·714	·696	·885	·866	20·549		0·71	35. 18. 39·47	30·40	43·9		42·35	73. 50. 43·62
	28	Uranus.....	JC	3·386	·782	·367	·354	·557	·513	20·144		31·83	27. 46. 10·59	30·40	43·2		31·54	66. 18. 3·70
	29	53 Aurigæ	JC	2·353	·740	·321	·326	·500	·482	25·249		59·59	22. 22. 38·35	,,	,,		24·66	60. 54. 24·81
	30	26 Geminorum	JC	3·894	·292	·853	·846	·023	·996	20·425		9·79	33. 41. 48·55	,,	,,		39·93	72. 13. 50·28
	31	12 Canis Majoris...	JC	0·566	·981	·587	·583	·743	·752	20·122		39·58	72. 18. 18·34	30·39	42·0		3. 6·08	110. 52. 46·22
	32	Mars N. L.....	JC	0·584	·981	·566	·585	·746	·717	22·216	1	43·52	24. 59. 22·28	,,	,,		27·98	63. 31. 14·15
	33	Mars S. L.	JC	,,	,,	,,	,,	,,	,,	22·646	2	55·52	24. 59. 34·28	,,	,,		27·98	63. 31. 13·26
	34	*g* Leonis.....	JC	4·334	·764	·316	·333	·528	·470	19·721		18·57	26. 26. 57·33	30·36	41·4		29·87	64. 58. 49·00
	35	λ Virginis	E	4·092	·478	·035	·044	·205	·212	20·447		22·33	64. 12. 1·09	30·31	39·8	44·0	2. 3·82	102. 45. 26·71
	36	☽ S. L.....	E	0·287	·693	·248	·280	·416	·425	22·472	1	36·59						
	37	☽ S. L.....	E	,,	,,	,,	,,	,,	,,	22·541	2	36·44	63. 39. 15·62	,,	39·6		2. 0·95	101. 8. 25·53
	38	☽ S. L.....	E	,,	,,	,,	,,	,,	,,	22·686	4	36·21						
	39	☽ S. L.....	E	,,	,,	,,	,,	,,	,,	22·832	5	38·20						
	40	ε Boötis	E	0·995	·401	·952	·990	·132	·136	23·072	5	31·53	23. 50. 10·29	,,	,,		26·58	62. 21. 58·67

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
8, 9	+ 2·15	48. 9·00	15. 11·89					1, 2	+ 3·06	18	− 8·61	29	− 7·76		
12	− 0·22	7·88	16. 11·70					3, 4	− 11·15	19	− 16·82	30	− 11·52		
13		7·92						10	− 2·08	20	− 19·45	31	− 21·55		
28		0·23						11	− 0·84	21, 22	− 6·04	34	− 12·95		
32, 33	+ 0·02	4·36	6·45					14	+ 0·46	23	− 18·06	35	− 0·98		
36, &c.	+ 1·87	49. 11·05	15. 1·79					15	− 11·17	24	− 17·71	40	− 10·97		
								16	− 10·40	26	− 12·03				
								17	+ 0·28	27	− 11·36				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4r·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

1. The cross-wires of microscopes A, C, D, E, and F fell on the negative side of the micrometer-zeros. The fractional parts of the readings have been taken from the micrometer-heads, the integer 9 representing − 1.
8, 9. Very tremulous; limb ill defined; cloudy.
10, 11, 19. Faint.
12, 13. The microscopes were read by W and HC.
18. Extremely faint.
27. Faint; cloudy.
28. Extremely faint.
31. Very faint.
32, 33. Cloudy.
33. Computed distance of limb from illuminated edge, 3°. 39′; correction applied, + 0″·01.
36, &c. Limb very uneven.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle Reading	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Feb. 24	1	ι^1 Libræ	C	4·403	·822	·395	·407	·545	·544	21·600		17·66	70. 42. 56·42	30·11	41·0		2. 48·78	109. 17. 7·00
	2	β Libræ	C	2·269	·679	·246	·260	·424	·394	20·654		38·04	60. 20. 16·80	,,	,,		1. 44·30	98. 53. 22·90
	3	☽ S. L.	C	3·074	·500	·041	·066	·225	·204	20·094	1	16·70						
	4	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·180	2	17·44						
	5	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·210	3	16·47	66. 30. 55·74	30·11	40·6		2. 16·47	103. 59. 44·56
	6	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·294	4	17·03						
	7	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·368	5	17·25						
	8	Saturn N. L.	C	1·956	·390	·955	·980	·122	·087	21·324	5	39·42	68. 0. 18·18	,,	,,		2. 26·66	106. 34. 13·58
	9	Saturn S. L.	C	,,	,,	,,	,,	,,	,,	21·946	7	56·72	68. 0. 35·48	,,	,,		2. 26·69	106. 34. 15·31
	10	48 Libræ	C	2·440	·876	·416	·437	·590	·567	19·704		20·76	65. 19. 59·52	,,	39·8		2. 9·40	103. 53 30·72
	11	β^1 Scorpii	C	3·580	·989	·550	·584	·726	·703	21·460		22·56	70. 52. 1·32	,,	,,		2. 50·62	109. 26. 13·74
Feb. 25	12	☉ N. L.	P	1·032	·396	·974	·975	·155	·143	21·804	2	54·60	60. 19. 33·18	30·13	47·9	49·0	1. 42·83	99. 8. 41·19
	13	☉ S. L.	P	3·762	·141	·723	·696	·883	·861	20·744	5	10·03	60. 51. 48·61	,,	,,		1. 45·10	99. 8. 36·45
	14	Wire (Nadir Obs.) R.	P	2·252	·680	·193	·243	·423	·410	20·117		21·72	....					....
	15	21 Leonis Minoris	P	0·917	·292	·863	·880	·110	·068	23·013	5	24·76	15. 35. 3·34	29·91	48·8		16·25	54. 6. 41·39
Feb. 26	16	Sirius	HC	0·239	·671	·249	·267	·402	·397	21·650		4·48	67. 58. 43·06	29·94	39·3	43·0	2. 26·04	106. 32. 30·90
	17	Wire (Nadir Obs.) R.	HC	3·629	·100	·623	·647	·848	·818	17·165		20·77	....					....
Feb. 27	18	Wire (Nadir Obs.) R.	K	2·469	·943	·454	·491	·698	·632	19·557		20·32	....					....
Feb. 28	19	γ Pegasi	E	2·257	·684	·206	·257	·459	·391	22·692	5	37·83	37. 1. 16·41	30·14	41·8	44·0	44·89	75. 33. 23·10
	20	Mars N. L.	E	2·199	·640	·164	·225	·400	·330	20·437	5	28·39	25. 10. 6·97	30·25	36·5	41·0	28·40	63. 41. 59·08
	21	Mars S. L.	E	,,	,,	,,	,,	,,	,,	21·000	6	44·75	25. 10. 23·33	,,	,,		28·40	63. 42. 3·25
	22	Procyon	E	0·709	·175	·698	·740	·929	·873	21·289	2	24·51	45. 54. 3·09	,,	35·8		1. 2·40	84. 26. 27·29
	23	5 Puppis	E	0·346	·801	·297	·389	·550	·504	22·066	1	24·43	63. 19. 3·01	,,	,,		1. 59·92	101. 52. 24·73
	24	ζ Canis Minoris	E	3·252	·701	·198	·253	·462	·375	21·013		49·79	49. 21. 28·37	,,	,,		1. 10·42	87. 54. 0·59
	25	ϵ Draconis S.P.	E	2·257	·706	·248	·297	·506	·439	21·946		18·54	−58. 34. 2·88	,,	,,		1. 38·75	−20. 4. 19·83
	26	28 Monoceros	E	0·826	·259	·796	·858	·017	·964	21·273		28·81	52. 29. 7·39	,,	,,		1. 18·68	91. 1. 47·87
	27	ψ^1 Canci	E	9·788	·244	·777	·851	·024	·972	23·865	5	43·85	25. 14. 22·43	,,	,,		28·53	63. 46. 12·76
	28	β Canci	E	2·569	·012	·515	·561	·753	·689	24·284		44·34	41. 52. 22·92	30·26	35·1		54·31	80. 24. 39·03
	29	Bradley 1188	E	1·482	·928	·436	·501	·666	·605	24·450	7	41·55	33. 51. 20·13	,,	,,		40·66	72. 23. 22·59
	30	θ Cephei S.P.	E	3·617	·070	·603	·682	·882	·817	24·674		3·02	−65. 56. 18·40	,,	,,		2. 15·05	−27. 27. 11·65
	31	Bradley 1219	E	0·560	·995	·524	·604	·783	·726	21·282		14·19	19. 3. 52·77	,,	,,		20·96	57. 35. 35·53
	32	σ^1 Canci	E	9·496	·914	·446	·513	·720	·656	21·377		11·35	20. 17. 49·93	,,	,,		22·43	58. 49. 34·16
	33	b Ursæ Majoris	E	2·776	·216	·725	·785	·004	·936	22·035		51·81	−10. 58. 29·61	,,	,,		11·76	27. 32. 40·43
	34	ρ^1 Canci	E	4·444	·929	·446	·503	·687	·622	21·586		22·70	22. 43. 1·28	,,	,,		25·39	61. 14. 48·47
	35	64 Canci	E	4·372	·842	·335	·413	·582	·554	20·676		48·11	18. 32. 26·69	,,	,,		20·34	57. 4. 8·83
	36	f^1 Cygni S.P.	E	2·077	·496	·048	·117	·262	·212	20·807	1	34·79	−81. 24. 46·63	30·28	34·2	38·0	6. 24·90	−42. 59. 49·73
	37	σ^2 Ursæ Majoris	E	9·982	·413	·963	·027	·234	·206	22·142		5·34	−16. 11. 16·08	,,	,,		17·65	22. 19. 48·07

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
3, &c.	+ 1·51	49. 55·18	14. 54·27					1	+ 3·47	23	− 19·36	31	− 10·06		
8, 9	0·00	0·86	7·80					2	+ 0·21	24	− 16·38	32	− 10·44		
12		7·82						10	+ 3·36	25	− 5·17	33	− 4·27		
13	− 0·22	7·86	16. 11·20					11	+ 5·58	26	− 17·02	34	− 11·08		
20, 21	+ 0·02	4·19	6·10					15	− 11·89	27	− 10·81	35	− 10·43		
								16	− 21·12	28	− 14·70	36	− 2·61		
								19	− 2·83	29	− 13·03	37	− 4·16		
								22	− 15·68	30	− 3·53				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = +0″·305; from February 25, +0″·116.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = −0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 7′. 38″·76; from February 25, + 7°. 38″·58.

3, &c. Limb very rugged.
21. Computed distance of limb from illuminated edge, 3°·43′; correction applied, +0″·01.
27. The cross-wires of microscopes A, C, D, and F fell on the negative side of the micrometer-zeros; the fractional parts of the readings were taken from the micrometer-heads, the integer 9 representing −1.
37. The cross-wires of microscopes A and C fell on the negative side of the micrometer-zeros; the fractional parts of the readings were taken from the micrometer-heads, the integer 9 representing −1
12, 13. Limbs very badly defined. The microscopes were read by W and H C.
23. The larger of two stars observed.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle-Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Mar. 11	1	Wire (Nadir Obs.) R.	JC	1·404	·919	·395	·447	·698	·606	21·721		21·19	....					....
Mar. 13	2	Wire (Nadir Obs.) R.	C	2·054	·643	·076	·157	·396	·284	20·310		21·84	....					....
Mar. 15	3	⊙ N. L.	JC	1·104	·619	·087	·154	·382	·232	18·916	2	38·40	53. 23. 16·59	29·66	38·2	37·5	1. 19·33	92. 11. 57·14
	4	⊙ S. L.	JC	3·222	·755	·215	·271	·501	·363	18·837		46·32	53. 53. 24·51	,,	,,		1. 20·89	92. 11. 53·37
	5	Uranus	JC	2·603	·147	·616	·664	·933	·741	21·447	6	26·41	27. 46. 4·60	29·68	34·4		31·36	66. 17. 57·53
	6	Wire (Nadir Obs.) R.	JC	1·548	·110	·546	·624	·875	·766	21·392		21·69	....					....
	7	Mars N. L.	JC	3·706	·248	·719	·775	·037	·866	20·446	2	6·78	25. 51. 44·97	29·69	33·3		28·95	64. 23. 33·61
	8	Mars S. L.	JC	,,	,,	,,	,,	,,	,,	20·845		17·47	25. 51. 55·66	,,	,,		28·95	64. 23. 33·61
	9	δ Geminorum	JC	1·667	·204	·666	·721	·976	·811	20·812	5	9·73	29. 14. 47·92	,,	,,		33·43	67. 46. 43·15
	10	56 Geminorum	JC	3·289	·832	·292	·343	·605	·436	21·291	5	3·69	30. 46. 41·88	,,	,,		35·56	69. 18. 39·24
	11	61 Geminorum	JC	3·044	·591	·042	·093	·344	·189	22·412		21·89	30. 57. 0·08	29·70	32·3		35·89	69. 28. 57·77
	12	Bradley 1090	JC	4·388	·941	·387	·466	·742	·569	22·773		57·36	20. 13. 35·55	,,	,,		22·06	58. 45. 19·41
	13	*f* Geminorum	JC	1·654	·209	·653	·714	·959	·811	20·652		4·65	33. 29. 42·84	,,	,,		39·61	72. 1. 44·25
	14	11 Canis Minoris	JC	4·072	·637	·074	·143	·396	·238	21·521		0·00	40. 22. 38·19	29·70	31·7		50·94	78. 54. 50·93
	15	ζ Canis Minoris	JC	2·781	·332	·786	·839	·107	·949	21·892		51·42	49. 21. 29·61	,,	,,		1. 9·74	87. 54. 1·15
	16	☽ N. L.	JC	4·703	·276	·697	·771	·012	·865	21·201	2	32·17						
	17	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·236	3	31·46						
	18	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·311	4	32·08	35. 23. 10·19	29·70	31·6	33·5	42·57	73. 37. 25·22
	19	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·376	5	32·26						
	20	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·422	6	32·05						
	21	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·471	7	31·98						
	22	ψ^1 Cancri	JC	0·783	·330	·784	·863	·114	·954	21·700		43·34	25. 14. 21·53	,,	,,		28·26	63. 46. 11·59
	23	Piazzi XI. 43 ...R.	JC	2·173	·717	·171	·228	·484	·374	19·072	1	50·09	−13. 34. 28·28	29·73	29·3		14·56	24. 56. 38·96
	24	Piazzi XI. 43	JC	1·445	·944	·402	·476	·778	·639	22·749		54·06	−13. 34. 27·75	,,	,,			24. 56. 39·49
	25	61 Ursæ Majoris .R.	JC	4·659	·193	·668	·732	·033	·880	22·287	2	0·39	16. 31. 21·58	29·73	29·3		17·89	55. 3. 1·11
	26	61 Ursæ Majoris	JC	2·402	·933	·414	·469	·736	·585	22·416	6	43·50	16. 31. 21·69	,,	,,			55. 3. 1·38
	27	Elpis	JC	2·534	·067	·527	·586	·836	·705	21·603	6	26·46	48. 16. 4·65	,,	,,		1. 7·53	86. 48. 30·67
	28	72 Ophiuchi	E	1·972	·502	·932	·027	·237	·153	20·367	1	16·87	41. 54. 55·06	29·77	27·8	33·0	54·35	80. 27. 11·21
Mar. 16	29	⊙ S. L.	E	4·398	·927	·379	·427	·643	·503	19·143	2	6·91	53. 31. 45·10	29·83	36·4	37·5	1. 20·50	91. 48. 13·81
	30	⊙ N. L.	E	2·059	·590	·033	·085	·319	·170	19·542		54·71	52. 59. 32·90	,,	,,		1. 18·95	91. 48. 12·91
	31	Polaris	E	0·557	·082	·534	·615	·882	·791	19·860		35·43	−37. 6. 46·38	29·82	38·0	39·0	44·92	1. 23. 50·30
	32	B. F. 1128	E	0·447	·974	·422	·498	·712	·620	24·290	5	36·97	32. 15. 15·16	29·91	30·8	35·0	38·16	70. 47. 15·12
	33	η Cancri	E	1·400	·914	·375	·442	·662	·545	21·368		8·98	30. 34. 47·17	,,	,,		35·74	69. 6. 44·71
	34	δ Cancri	E	1·417	·967	·428	·490	·697	·604	21·134		4·60	32. 49. 42·79	,,	,,		39·01	71. 21. 43·60
	35	ρ^1 Cancri	E	4·478	·990	·490	·548	·800	·647	21·445	5	22·36	22. 43. 0·55	,,	,,		25·32	61. 14. 47·67
	36	☽ N. L.	E	3·897	·439	·876	·935	·160	·078	21·475	2	51·08						
	37	☽ N. L.	E	,,	,,	,,	,,	,,	,,	21·602	3	52·56						
	38	☽ N. L.	E	,,	,,	,,	,,	,,	,,	21·642	4	51·50	37. 57. 30·22	,,	30·2		47·22	76. 9. 48·34
	39	☽ N. L.	E	,,	,,	,,	,,	,,	,,	21·744	5	52·33						
	40	☽ N. L.	E	,,	,,	,,	,,	,,	,,	21·900	7	52·70						

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.
	"	′ ″	′ ″		"	′ ″	′ ″
3	− 0·23	7·18	16. 6·60	36, &c.	+ 1·78	35. 51·36	16. 0·40
4		7·23					
5	0·00	0·23					
7, 8	+ 0·03	7·46	5·35				
16, &c.	+ 1·23	33. 54·32	16. 4·98				
27	− 0·08	3·31					
29	− 0·23	7·19	16. 6·40				
30		7·14					

No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.
	"		"		"		"
9	− 10·33	23, 24	− 6·69				
10	− 10·85	25, 26	− 10·85				
11	− 10·98	28	− 2·36				
12	− 7·60	31	+ 7·59				
13	− 11·95	32	− 11·78				
14	− 14·15	33	− 11·58				
15	− 16·82	34	− 12·28				
22	− 9·78	35	− 9·58				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

3, 4. Very cloudy. The microscopes were read by W. and H.C.

5. Very cloudy.

8. Computed distance of limb from illuminated edge, 4°. 12′; correction applied, + 0″·01.

10, 16, &c. Cloudy.

11. The reading for microscope C was obtained from a comparison with neighbouring observations, the division under the microscope being spoilt by a scratch.

23. The reading of the telescope-micrometer has been decreased 1^r.

29, 30. The microscopes were read by W and HC.

36, &c. A correction of + 0″·06 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Mar. 16	1	α Lyncis	E	2·700	·235	·715	·777	·013	·905	21·590		38·12	16. 31. 16·31	29·91	30·2		17·96	55. 2. 56·07
	2	*h* Leonis	E	1·605	·129	·600	·667	·902	·761	21·192		17·65	41. 9. 55·84	,,	,,		52·92	79. 42. 10·56
	3	ο Leonis	E	4·209	·740	·197	·254	·473	·355	22·452	5	33·96	40. 58. 12·15	29·91	29·7		52·61	79. 30. 26·56
	4	Wire (Nadir Obs.) R.	E	2·013	·573	·998	·094	·370	·253	20·411		21·67	....					....
	5	Juno	E	2·585	·132	·600	·647	·887	·734	19·642		32·47	45. 30. 10·66	29·91	30·2	33·5	1. 1·58	84. 2. 30·47
	6	Lalande (F.) 1729	E	0·107	·657	·086	·184	·435	·328	19·856		7·99	−36. 52. 13·82	,,	,,		45·40	1. 38. 22·58
	7	Bradley 3147 S.P.	E	1·647	·172	·636	·709	·985	·841	19·225		23·41	−41. 55. 58·40	,,	,,		54·36	−3. 25. 30·96
	8	Elpis	E	4·092	·592	·080	·113	·366	·221	23·052	5	44·03	48. 8. 22·22	,,	29·3		1. 7·64	86. 40. 48·35
	9	Victoria	E	3·493	·034	·485	·548	·786	·653	21·991	5	36·53	63. 17. 14·72	,,	,,		2. 0·06	101. 5o. 31·39
	10	Eunomia	E	2·604	·128	·636	·693	·880	·780	20·152		48·68	70. 0. 26·87	,,	29·0		2. 45·52	108. 34. 30·26
	11	Bradley 1672	E	0·070	·612	·050	·135	·396	·287	20·982		38·80	−36. 56. 43·01	,,	,,		45·64	1. 33. 53·15
	12	Polaris S.P.	E	1·752	·295	·775	·836	·106	·976	22·242		0·84	−39. 54. 20·97	29·91	28·7		50·78	−1. 23. 49·95
Mar. 18	13	Wire (Nadir Obs.) R.	D	1·008	·557	·021	·063	·336	·200	22·533		21·71	....					....
Mar. 20	14	Wire (Nadir Obs.) R.	JC	1·164	·708	·154	·216	·496	·359	22·222		21·82	....					....
Mar. 21	15	Mars N.L.	C	4·515	·015	·511	·557	·784	·635	20·360	2	51·60	26. 12. 29·79	29·76	34·2	37·0	29·41	64. 44. 22·51
	16	Mars S.L.	C	,,	,,	,,	,,	,,	,,	20·772	5	2·18	26. 12. 40·37	,,	,,		29·41	64. 44. 22·91
	17	Bradley 1090	C	4·705	·240	·730	·777	·034	·864	22·135		57·02	20. 13. 35·21	,,	,,		22·02	58. 45. 19·03
	18	70 Geminorum	C	4·210	·724	·195	·246	·530	·356	21·712		12·63	16. 7. 50·82	,,	,,		17·28	54. 39. 29·90
	19	Bradley 1107	C	2·060	·623	·064	·122	·375	·215	22·020	5	10·57	45. 55. 48·76	,,	,,		1. 1·66	84. 28. 12·22
	20	2 Puppis (1st Star)	C	0·075	·671	·126	·210	·400	·298	21·750	2	3·61	65. 48. 41·80	29·75	34·0		2. 12·31	104. 22. 15·91
	21	2 Puppis (2d Star)	C	,,	,,	,,	,,	,,	,,	22·357	6	19·84	65. 48. 58·03	,,	,,		2. 12·33	104. 22. 32·16
	22	8 Puppis	C	1·869	·440	·884	·956	·187	·020	22·445		11·40	63. 55. 45·59	,,	,,		2. 1·58	102. 29. 12·97
	23	7 Cancri	C	3·164	·678	·162	·231	·471	·299	21·769		9·92	29. 1. 48·11	,,	,,		33·16	67. 33. 43·07
	24	ψ^1 Cancri	C	1·169	·713	·178	·244	·524	·333	20·850		41·96	25. 14. 20·15	,,	,,		28·16	63. 46. 10·11
	25	18 Puppis	C	2·947	·528	·968	·040	·270	·124	21·474		49·43	64. 51. 27·62	,,	33·6		2. 6·80	103. 24. 56·22
	26	A Ursæ Majoris .R.	C	3·860	·406	·851	·932	·177	·050	20·340	1	11·05	−14. 6. 49·24	,,	,,		15·04	24. 24. 17·52
	27	A Ursæ Majoris	C	4·597	·090	·562	·630	·918	·759	21·599	5	32·67	−14. 6. 49·14	,,	,,			24. 24. 17·62
	28	γ Cancri R.	C	0·644	·204	·620	·725	·997	·844	20·063	1	47·11	29. 31. 34·70	29·74	33·5		33·86	68. 3. 30·36
	29	γ Cancri	C	4·250	·754	·225	·294	·526	·366	19·125	6	56·51	29. 31. 34·70	,,	,,			68. 3. 30·36
	30	*b* Ursæ Majoris	C	2·175	·682	·154	·214	·521	·347	23·020		47·01	−10. 58. 34·80	,,	,,		11·60	27. 32. 35·40
	31	ρ^1 Cancri	C	4·760	·290	·780	·844	·071	·924	20·844		22·04	22. 43. 0·23	,,	,,		25·04	61. 14. 47·07
	32	64 Cancri	C	4·120	·654	·101	·186	·434	·272	21·096		49·37	18. 32. 27·56	,,	,,		20·06	57. 4. 9·42
	33	Wire (Nadir Obs.) R.	C	1·700	·300	·720	·823	·075	·925	21·013		21·28	....					....
Mar. 25	34	Wire (Nadir Obs.) R.	HC	0·964	·373	·941	·910	·171	·143	22·749		21·29	....					....
	35	σ^2 Ursæ Majoris	HC	3·929	·328	·929	·893	·161	·101	23·906		58·75	−16. 11. 22·80	29·45	50·2	51·0	16·61	22. 19. 42·39
	36	83 Cancri	HC	4·842	·245	·845	·771	·981	·943	19·167	1	33·41	33. 12. 11·86	,,	,,		37·42	71. 44. 11·08
	37	α Lyncis	HC	3·740	·136	·750	·689	·946	·883	19·673	7	40·34	16. 31. 18·79	29·44	49·9		16·97	55. 2. 57·56
	38	*h* Ursæ Majoris	HC	2·124	·500	·096	·076	·330	·290	21·159		45·34	12. 9. 36·21	,,	,,		12·33	26. 21. 33·26

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″		″	′ ″	′ ″
5		3·57					
8	− 0·07	3·31					
9	− 0·01	5·19					
10		3·93					
15, 16	+ 0·05	3·59	5·10				

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″		″		″		″
1	− 8·46	18	− 5·94	26, 27	+ 1·56	38	− 0·03
2	− 14·19	19	− 15·82	28, 29	− 11·00		
3	− 14·08	20	− 21·52	30	+ 0·18		
6	− 2·14	21	− 21·52	31	− 9·12		
7	+ 2·91	22	− 20·98	32	− 8·03		
11	− 5·67	23	− 10·51	35	+ 1·58		
12	+ 7·44	24	− 9·39	36	− 11·95		
17	− 7·24	25	− 20·94	37	− 7·31		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″, from March 11, = + 0″·442; from March 18, + 0″·276; from March 25, + 0″·536.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4). for objects above the pole.
Zenith Point Correction, from March 11, = + 7′. 38″·19; from March 25, + 7′. 38″·45.

6. Cloudy.
19. An extremely close double star; observed as one mass.
16. Computed distance of limb from illuminated edge, 4°. 31′; correction applied, + 0″·02.
38. The second and larger of two stars observed.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Combined Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Mar. 27	1	☽ N. L.	K	3·149	·559	·164	·140	·329	·278	22·925	1	41·05						
	2	☽ N. L.	K	,,	,,	,,	,,	,,	,,	22·905	2	40·39						
	3	☽ N. L.	K	,,	,,	,,	,,	,,	,,	22·945	3	41·45						
	4	☽ N. L.	K	,,	,,	,,	,,	,,	,,	22·922	4	40·54	70. 12. 19·64	29·29	36·7		2. 41·15	108. 10. 14·86
	5	☽ N. L.	K	,,	,,	,,	,,	,,	,,	22·979	5	41·95						
	6	☽ N. L.	K	,,	,,	,,	,,	,,	,,	22·998	7	41·74						
	7	Venus N. L.	L	4·348	·776	·338	·302	·522	·457	20·648	1	46·70	64. 57. 25·15	29·32	44·4	45·8	2. 2·70	103. 30. 49·84
	8	Venus S. L.	L	,,	,,	,,	,,	,,	,,	21·317	5	5·62	64. 57. 44·07	,,	,,		2. 2·73	103. 30. 51·82
Mar. 28	9	☉ S. L.	K	4·528	·916	·484	·452	·689	·620	22·462	2	50·39	48. 48. 28·84	29·35	49·8	51·0	1. 5·10	87. 4. 46·03
	10	☉ N. L.	K	2·600	·992	·559	·533	·752	·690	22·277		45·91	48. 16. 24·36	,,	,,		1. 3·89	87. 4. 46·40
	11	Wire (Nadir Obs.) R.	K	1·674	·088	·639	·654	·879	·824	21·280		21·45	....					....
	12	Mars S. L.	K	1·950	·340	·950	·939	·135	·068	21·301	1	40·57	26. 40. 19·02	29·40	43·8		29·06	65. 12. 1·66
	13	Mars N. L.	K	,,	,,	,,	,,	,,	,,	21·034	7	29·81	26. 40. 8·26	,,	,,		29·06	65. 12. 0·48
	14	Bradley 1105	K	3·334	·729	·302	·251	·474	·408	18·999		53·68	46. 5. 32·13	,,	,,		1. 0·04	84. 37. 53·97
	15	6 Puppis	K	2·495	·928	·505	·495	·672	·605	19·768		27·04	68. 20. 5·49	,,	,,		2. 24·60	106. 53. 51·89
	16	10 Puppis	K	3·581	·014	·570	·570	·768	·695	21·840		34·91	65. 57. 13·36	29·41	42·8		2. 9·25	104. 30. 44·41
	17	7 Cancri	K	2·560	·939	·552	·519	·730	·639	23·139		9·30	29. 1. 47·75	,,	,,		32·18	67. 33. 41·73
	18	18 Puppis	K	4·491	·961	·504	·489	·682	·612	18·539		53·90	64. 51. 32·35	,,	42·3		2. 3·08	103. 24. 57·23
	19	γ Cancri R.	K	0·599	·055	·589	·601	·852	·791	20·202	1	45·75	29. 31. 35·80	29·41	41·8		32·91	68. 3. 30·51
	20	γ Cancri	K	2·945	·334	·922	·889	·105	·032	21·930	7	56·04	29. 31. 34·49	,,	,,			68. 3. 29·20
	21	ρ Ursæ Majoris R.	K	1·397	·821	·400	·404	·601	·578	21·328	5	6·53	−16. 39. 44·98	,,	41·2		17·42	21. 51. 19·40
	22	ρ Ursæ Majoris	K	4·610	·980	·570	·571	·796	·752	25·740	7	34·47	−16. 39. 47·08	,,	,,			21. 51. 17·30
	23	Bradley 1361	K	1·960	·411	·983	·968	·164	·098	15·018		34·26	61. 37. 12·71	,,	,,		1. 47·30	100. 10. 21·81
	24	14 Leonis Minoris	K	2·452	·874	·430	·420	·680	·579	19·238		8·74	5. 44. 47·19	,,	,,		5·86	44. 16. 14·85
	25	Lacaille 4072	K	2·565	·016	·586	·582	·772	·717	19·780		33·34	81. 50. 11·79	29·41	41·0		6. 25·91	120. 27. 59·50
	26	20 Leonis Minoris	K	0·935	·369	·937	·939	·140	·072	20·442		12·00	18. 53. 50·45	,,	,,		19·93	57. 25. 32·18
	27	21 Leonis Minoris	K	2·046	·460	·022	012	·262	·177	20·452		19·80	15. 34. 58·25	29·42	40·2		16·27	54. 6. 36·32
	28	d^1 Virginis	K	2·620	·040	·574	·584	·779	·728	20·614		58·72	43. 55. 37·17	29·42	38·5		56·33	82. 27. 55·30
	29	31 Comæ	K	4·332	·758	·349	·336	·530	·450	20·766		50·51	23. 12. 28·96	,,	,,		25·10	61. 44. 15·86
	30	54 Virginis (1st Star)	K	1·192	·674	·215	·240	·420	·366	18·831	5	40·92	69. 33. 19·37	29·42	38·1		2. 35·90	108. 7. 17·07
	31	54 Virginis (2nd Star)	K	,,	,,	,,	,,	,,	,,	18·760	7	37·67	69. 33. 16·12	,,	,,		2. 35·90	108. 7. 13·82
Mar. 29	32	Mars N. L.	JC	1·842	·264	·810	·824	·038	·957	19·787		47·25	26. 44. 25·70	29·60	45·4		29·25	65. 16. 18·43
	33	Wire (Nadir Obs.) R.	JC	1·729	·150	·704	·700	·931	·882	21·158		21·29	....					....
	34	10 Puppis	JC	3·735	·177	·754	·724	·926	·865	21·524		35·63	65. 57. 14·08	29·60	44·8		2. 9·54	104. 30. 45·42
	35	12 Puppis	JC	3·998	·419	·012	·985	·193	·120	21·846		1·20	74. 22. 39·65	,,	,,		3. 24·89	112. 57. 26·34
	36	14 Puppis	JC	3·854	·284	·868	·856	·047	·988	21·701		48·27	70. 47. 26·72	,,	44·5		2. 45·39	109. 21. 33·91
	37	κ Cephei S.P.	JC	4·694	·124	·731	·707	·958	·883	21·546		37·67	−51. 11. 43·88	29·60	43·7		1. 12·34	−12. 41. 34·42
	38	Bradley 1219	JC	0·282	·708	·274	·277	·496	·433	21·808	5	11·91	19. 3. 50·36	,,	43·3		20·15	57. 35. 32·31
	39	σ^1 Cancri	JC	4·026	·443	·006	·998	·241	·154	22·017		8·33	20. 17. 46·78				21·57	58. 49. 30·15

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
1, &c.	− 0·19	50. 57·27	14. 49·54					14	− 15·79	24	− 4·44	34	− 21·79		
7, 8	− 0·17	8·51	8·70					15	− 22·43	25	− 21·09	35	− 23·81		
9	− 0·23	6·71						16	− 21·77	26	− 8·13	36	− 22·88		
10		6·65	16. 3·00					17	− 10·16	27	− 7·26	37	− 9·19		
12, 13	+ 0·04	3·44	4·80					18	− 21·25	28	− 10·41	38	− 7·13		
32		3·42	5·10					19, 20	− 10·55	29	− 9·52	39	− 7·57		
								21, 22	+ 2·49	30	− 7·97				
								23	− 18·50	31	− 7·97				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r·902$ corresponds to an arc of $5'$.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066; and the other quantities being taken from the Appendix to the Observations for 1853.

8. Computed distance of limb from illuminated edge, 18°. 4′; correction applied, +0″·43.

9, 10. The microscopes were read by W and P.

12. Computed distance of limb from illuminated edge, 5°. 0′; correction applied, +0″·02.

32. Very cloudy; a correction of +0″·35, derived from 11 neighbouring observations, has been applied to the N.A. semidiameter.

35. The microscope readings have been decreased 1^r.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope Micrometer.	Vertical Wire at which Observation is made.	Seconds of Calculated Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N. P. D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Mar. 29	1	1 Comæ .....R.	JC	4·194	·623	·156	·166	·406	·342	19·788	1	12·84	28. 38. 8·71	29·63	41·0		32·02	67. 10. 2·53
	2	1 Comæ	JC	0·628	·052	·636	·628	·833	·766	19·746	7	31·19	28. 38. 9·64	,,	,,			67. 10. 3·46
	3	Bradley 1634 ....R.	JC	3·619	·044	·603	·598	·812	·753	21·675	2	31·86	−26. 52. 10·31	,,	,,		29·71	11. 38. 41·78
	4	Bradley 1634	JC	4·654	·046	·593	·598	·857	·787	20·906	3	13·37	−26. 52. 8·18	,,	,,			11. 38. 43·91
	5	9 Comæ	JC	1·194	·619	·178	·184	·405	·333	20·982		43·80	22. 34. 22·25	,,	,,		24·38	61. 6. 8·43
	6	Polaris S.P.....	JC	2·176	·607	·174	·175	·413	·334	21·257		53·75	−39. 54. 27·80	29·63	39·7		49·15	−1. 23. 55·15
Mar. 30	7	⊙ S. L.	C	3·378	·812	·352	·333	·553	·507	21·210	1	4·33	48. 1. 42·78	29·68	51·3	49·0	1. 3·86	86. 17. 59·32
	8	⊙ N. L.	C	1·687	·133	·650	·656	·870	·802	20·609	3	2·13	47. 29. 40·58	,,	,,		1. 2·68	86. 18. 1·00
	9	Wire (Nadir Obs.) R.	C	1·713	·154	·682	·710	·931	·888	21·176		21·64	....					....
	10	γ Cephei S.P.	C	4·376	·831	·439	·424	·648	·606	22·116		36·35	−51. 36. 45·20	29·71	38·6		1. 14·48	−13. 6. 37·88
	11	Groombridge 1830 .	C	4·546	·970	·494	·530	·755	·678	21·840		34·46	12. 48. 12·91	,,	,,		13·43	51. 19. 48·14
	12	W. B. XI. 890	C	1·479	·942	·503	·504	·674	·625	22·025	5	32·03	66. 45. 10·48	,,	38·4		2. 16·81	105. 18. 49·09
	13	o Virginis	C	0·990	·445	·970	·977	·180	·116	21·900		57·89	41. 59. 36·34	,,	,,		53·19	80. 31. 51·33
	14	68 Ursæ Majoris ...	C	2·740	·171	·685	·696	·960	·882	21·354		28·55	− 6. 18. 53·00	,,	,,		6·54	32. 12. 22·26
	15	W. B. XII. 136 ...	C	4·029	·485	·032	·037	·217	·144	21·430		50·53	53. 27. 28·98	,,	38·0		1. 19·70	92. 0. 10·48
	16	9 Comæ	C	0·591	·086	·626	·649	·850	·768	22·130		43·52	22. 34. 21·97	,,	,,		24·60	61. 6. 8·37
	17	74 Ursæ Majoris ...	C	1·614	·040	·561	·565	·839	·747	22·604		56·44	− 7. 39. 25·89	,,	,,		7·96	30. 51. 48·73
	18	ρ Virginis.....	C	1·785	·246	·770	·794	·980	·913	20·678		11·00	40. 29. 49·45	29·72	38·1		50·51	79. 2. 1·76
Mar. 31	19	Venus S.L.....	E	4·442	·892	·415	·447	·618	·567	18·481	5	47·60	63. 41. 26·05	30·36	46·5	46·0	1. 59·61	102. 14. 31·30
	20	Venus N.L.	E	,,	,,	,,	,,	,,	,,	17·790	7	26·47	63. 41. 4·92	,,	,,		1. 59·58	102. 14. 26·58
April 1	21	⊙ S. L.	E	2·550	·000	·515	·537	·747	·668	20·036	1	39·37	47. 15. 17·82	30·38	51·9	51·5	1. 3·54	85. 31. 34·73
	22	⊙ N. L.	E	0·568	·021	·528	·538	·760	·682	20·026		35·81	46. 43. 14·26	,,	,,		1. 2·37	85. 31. 33·85
	23	Polaris	E	0·025	·438	·947	·031	·242	·204	21·262		40·30	−37. 6. 41·25	30·37	52·7	51·0	44·38	1. 23. 56·17
	24	Wire (Nadir Obs.) R.	E	2·008	·417	·963	·985	·205	·174	20·589		21·16	....					....
April 2	25	6 Ursæ Majoris	C	3·726	·060	·670	·664	·913	·877	21·638		36·36	−13. 37. 44·57	30·09	55·6		14·02	24. 53. 23·21
	26	σ^2 Ursæ Majoris ...	C	0·360	·740	·332	·316	·561	·545	21·150		56·77	−16. 11. 24·16	,,	,,		16·79	22. 19. 40·85
	27	e Muli	C	4·220	·559	·205	·149	·340	·336	21·176		52·33	81. 12. 31·40	30·09	55·6	56·0	5. 57·22	119. 49. 50·42
	28	Piazzi IX. 37	C	0·893	·234	·840	·806	·054	·049	22·016	5	53·42	−30. 25. 27·51	,,	,,		35·94	8. 5. 20·35
	29	Wire (Nadir Obs.) R.	C	2·306	·694	·256	·261	·478	·464	19·989		20·86	....					....
	30	20 Leonis Minoris R.	C	3·770	·141	·735	·713	·970	·925	19·260	1	29·98	18. 53. 50·95	30·10	34·5		20·68	57. 25. 33·43
	31	20 Leonis Minoris..	C	1·369	·721	·341	·322	·525	·506	19·636	7	11·83	18. 53. 50·90	,,	,,			57. 25. 33·38
	32	Brad. 1731 (1st Star)	C	3·445	·810	·400	·386	·600	·586	19·314		10·38	−32. 39. 10·55	30·13	49·8		37·52	5. 51. 33·73
	33	Brad. 1731 (2d Star)	C	,,	,,	,,	,,	,,	,,	19·935		28·76	−32. 38. 52·17	,,	,,		37·51	5. 51. 52·12
	34	19 Canum Venaticum	C	1·772	·142	·696	·705	·915	·910	21·342		26·86	9. 55. 5·93	,,	,,		10·24	48. 26. 37·97
	35	64 Virginis	C	2·978	·360	·930	·919	·105	·090	21·880		56·89	45. 36. 35·96	,,	49·4		59·80	84. 8. 57·56
	36	Piazzi XIV. 150 ...	C	4·114	·487	·110	·104	·266	·260	22·399		23·30	85. 53. 2·37	30·12	48·0	50·5	11.33·20	124. 35. 57·37
	37	α^2 Libræ	C	2·226	·614	·202	·196	·366	·337	21·460		58·77	66. 55. 37·84	,,	,,		2. 17·07	105. 29. 16·71
	38	ξ^{1} Libræ.....	C	4·415	·809	·385	·374	·539	·524	21·808	5	22·47	62. 48. 1·54	,,	,,		1. 53·84	101. 21. 17·18

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
7		6·62						1, 2	− 10·23	14	− 5·33	27	− 23·74	37	− 2·61
8	− 0·23	6·56	16. 2·50					3, 4	− 2·57	15	− 11·58	28	+ 5·42	38	− 3·18
19, 20	− 0·19	8·17	8·45					5	− 9·39	16	− 9·23	30, 31	− 7·48		
21		6·53						6	+ 3·34	17	− 5·67	32	− 2·22		
22	− 0·23	6·48	16. 1·90					10	− 2·38	18	− 10·24	33	− 2·22		
								11	− 9·20	23	+ 2·59	34	− 7·84		
								12	− 12·95	25	+ 2·66	35	− 8·97		
								13	− 11·21	26	+ 2·98	36	+ 0·30		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″, = + 0″·536; from March 31, + 0″·313.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction, = + 7′. 38″·45; from April 2, + 7′. 39″·07.

6. Cloudy; image very bad. 7, 8. The microscopes were read by W and H C. 19. Computed distance of limb from illuminated edge, 19′. 5′; correction applied, + 0″·46.
21, 22. The microscopes were read by W and H C. Previous to the observation the sun was accidentally allowed to shine on the instrument.
23. Very tremulous and faint. The cross-wires of microscope C fell on the negative side of the micrometer-zero; the fractional part of the reading was taken from the micrometer-head.
28. Cloudy; faint.
36. The division under microscope F being obliterated by a scratch, the reading was supplied by comparison with the neighbouring observations.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
April 9	1	Piazzi IX. 230	E	4·217	·560	·157	·162	·336	·305	21·992		15·72	28. 52. 54·79	29·70	45·0		32·15	67. 24. 48·74
	2	Piazzi XI. 164	E	2·926	·277	·858	·863	·092	·036	25·177	1	33·91	15. 48. 12·98	29·75	44·2	48·0	16·56	54. 19. 51·34
	3	* R.A. 11h. 44m. (6s)	E	2·881	·241	·793	·797	·976	·987	22·897		20·02	38. 26. 59·09	,,	,,		46·42	76. 59. 7·31
	4	*o* Leonis	E	0·937	·307	·872	·870	·053	·056	22·675		14·43	35. 4. 53·50	,,	,,		41·07	73. 36. 56·37
	5	Piazzi XII. 3.....	E	3·317	·670	·248	·258	·426	·424	22·086	7	22·93	23. 27. 2·00	,,	,,		25·38	61. 58. 49·18
	6	5 Comæ	E	2·312	·671	·278	·260	·412	·415	22·607	5	36·66	30. 11. 15·73	,,	,,		34·02	68. 43. 11·55
	7	10 Comæ	E	1·784	·129	·734	·727	·923	·906	23·404	1	31·03	22. 16. 10·10	,,	,,		23·95	60. 47. 55·85
	8	Piazzi XII. 75.....	E	2·983	·326	·924	·921	·098	·087	25·478	2	44·42	26. 48. 23·40	,,	,,		29·55	65. 20. 14·84
	9	Sappho.....	E	2·572	·941	·564	·525	·705	·690	20·532	5	52·01	60. 30. 31·08	,,	,,		1. 43·07	99. 3. 31·48
	10	23 Comæ	E	3·043	·407	·015	·996	·168	·157	21·579		52·34	28. 6. 31·41	,,	,,		31·24	66. 38. 24·45
	11	26 Comæ	E	1·845	·210	·793	·804	·964	·965	22.098		53·76	29. 40. 32·83	29·75	43·6		33·37	68. 12. 28·00
	12	d^2 Virginis.....	E	2.404	·744	·322	·322	·506	·484	17·425	1	9·93	43. 3. 49·00	,,	,,		54·69	81. 36. 5·49
	13	Isis	E	1·522	·869	·454	·452	·615	·612	19·332	5	10·64	42. 18. 49·71	,,	,,		53·28	80. 51. 1·27
	14	38 Comæ	E	0·645	·986	·575	·572	·734	·739	18·784		0·26	33. 37. 39·33	,,	,,		38·94	72. 9. 40·07
	15	Polaris S.P.....	E	2·987	·335	·928	·920	·134	·113	19·580		50·56	—39. 54. 30·37	,,	,,		48·95	—1. 23. 57·52
	16	Piazzi XIII. 109 R.	E	4·112	·470	·056	·044	·229	·214	18·124	2	15·47	—21. 35. 54·54	,,	,,		23·19	16. 55. 4·07
	17	Piazzi XIII. 109 ..	E	1·626	·981	·566	·577	·786	·794	19·571		26·62	—21. 35. 54·31	,,	,,			16. 55. 4·30
	18	1 Boötis..... R.	E	3·827	·163	·738	·726	·956	·935	26·085	2	53·06	30. 50. 27·87	,,	,,		34·96	69. 22. 24·63
	19	1 Boötis	E	2·349	·699	·297	·294	·450	·455	20·835	7	45·58	30. 50. 24·65	,,	,,			69. 22. 21·41
	20	Wire (Nadir Obs.) R.	E	2·024	·403	·932	·964	·154	·166	20·590		20·29	....					....
	21	Saturn, center.....	E	4·336	·690	·320	·288	·460	·440	21·005	2	55·37	67. 37. 34·44	29·80	41·8	45·5	2. 22·11	106. 11. 17·44
April 10	22	Wire (Nadir Obs.) R.	JC	1·374	·794	·348	·338	·566	·540	21·889		21·01	....					....
	23	42 Canceri.....	JC	2·951	·327	·926	·891	·080	·056	22·643		17·85	31. 16. 56·92	29·55	50·1		34·87	69. 48. 53·59
	24	ι Canceri	JC	0·359	·747	·338	·328	·522	·503	21·427		4·51	22. 13. 43·58	,,	,,		23·46	60. 45. 28·04
	25	σ^2 Canceri	JC	0·786	·170	·771	·744	·955	·928	20·193		54·23	20. 23. 33·30	,,	,,		21·34	58. 55. 16·44
	26	59 Canceri	JC	4·831	·216	·817	789	·995	·963	21·314		35·80	18. 3. 14·87	29·54	50·2		18·70	56. 34. 55·37
April 11	27	☽ N. L.	D	2·110	·456	·052	·019	·216	·190	20·526	3	23·38						
	28	☽ N. L.	D	,,	,,	,,	,,	,,	,,	20·609	5	22·88	34. 45. 2·31	29·84	44·5	49·0	40·66	72. 59. 47·10
	29	☽ N. L.	D	,,	,,	,,	,,	,,	,,	20·675	6	23·45						
	30	Wire (Nadir Obs.) R.	D	0·806	·209	·778	·769	·984	·879	23·090		20·31	....					....
	31	α Lyncis	D	2·305	·661	·278	·256	·468	·434	22·562		36·84	16. 31. 15·91	29·92	43·6	46·5	17·47	55. 2. 55·18
	32	7 Leonis Minoris...	D	0·759	·120	·732	·719	·929	·907	21·409		28·11	17. 14. 7·18	,,	43·4		18·28	55. 45. 47·26
	33	Piazzi IX. 124	D	3·744	·088	·701	·684	·884	·852	23·150		21·96	19. 43. 1·03	,,	,,		21·12	58. 14. 43·95
	34	8 Leonis.....	D	2·122	·485	·083	·048	·227	·211	22·906		33·70	34. 26. 12·77	,,	,,		40·39	72. 58. 14·96
	35	43 Lyncis.....	D	3·249	·585	·181	·178	·380	·353	21·680		7·18	11. 6. 46·25	,,	,,		11·58	49. 38. 19·63
	36	14 Leonis Minoris..	D	1·602	·969	·547	·546	·775	·732	21·000		6·89	5. 44. 45·96	,,	43·2		5·93	44. 16. 13·69
	37	Piazzi IX. 221.....	D	2·067	·427	·032	·022	·211	·182	23·578		52·26	21. 11. 31·33	,,	,,		22·86	59. 43. 15·99
	38	Piazzi IX. 230.....	D	3·795	·137	·740	·739	·921	·888	22·836		14·90	28. 52. 53·97	,,	43·1		32·52	67. 24. 48·29
	39	Victoria	D	0·965	·338	·960	·931	·121	·091	23·079	5	29·07	59. 40. 8·14	29·97	41·7	44·5	1. 40·92	98. 13. 5·78

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
9	— 0·09	4·47						1	— 9·43	10	— 8·24	24	— 7·27	36	— 2·25
13	— 0·04	3·52						2	— 6·28	11	— 8·39	25	— 6·65	37	— 6·96
21	— 0·01	0·91						3	— 10·41	12	— 9·66	26	— 5·89	38	— 9·24
27, &c.	+ 1·04	33. 23·04	16. 5·37					4	— 9·74	14	— 8·50	31	— 5·37		
								5	— 7·70	15	— 0·16	32	— 5·66		
								6	— 8·75	16, 17	— 2·83	33	— 6·44		
								7	— 7·51	18, 19	— 7·74	34	— 11·09		
								8	— 8·18	23	— 10·39	35	— 3·79		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of $5'$.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z.D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

27, &c. Very cloudy.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N. P. D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	″	° ′ ″
April 11	1	Bradley 1650 ...R.	D	0·872	·241	·847	·827	·013	·991	22·730	3	13·88	−24. 24. 52·95	29·97	39·0			
	2	Bradley 1650.....	D	0·862	·224	·824	·812	·052	·029	23·259	5	29·08	−24. 24. 51·85	,,	,,		27·04	14. 6. 1·81
	3	β Canum Venat..R.	D	3·601	·985	·568	·544	·780	·746	19·895	1	38·41	9. 23. 42·52	,,	38·6			14. 6. 2·91
	4	β Canum Venat....	D	0·871	·239	·806	·808	·042	·998	20·460	6	5·37	9. 23. 44·44	,,	,,		9·87	47. 55. 14·19
	5	d^1 Virginis	D	3·005	·366	·958	·902	·132	·108	19·855		58·21	43. 55. 37·28	,,	38·0			47. 55. 16·11
	6	d^2 Virginis	D	2·439	·809	·394	·381	·579	·552	17·301		8·63	43. 3. 47·70	,,	,,		57·45	82. 27. 56·53
	7	41 Virginis	D	1·488	·895	·445	·441	·647	·612	20·672		50·63	38. 19. 29·70	,,	37·7		55·74	81. 36. 5·24
	8	Polaris S.P.....	D	2·442	·817	·423	·388	·621	·579	20·661		50·32	−39. 54. 30·61	29·98	37·8		47·19	76. 51. 38·69
April 12	9	Piazzi VIII. 46 ...	C	2·111	·490	·106	·085	·311	·286	20·316		20·15	−16. 15. 0·78	30·09	47·0		49·93	−1. 23. 58·74
	10	ν^3 Cancri.....	C	3·566	·940	·544	·528	·716	·684	20·738		0·27	26. 56. 39·34	,,	,,		17·15	22. 16. 3·87
	11	3 Ursæ Majoris....	C	1·960	·350	·925	·922	·155	·119	21·100		33·44	−13. 59. 47·49	,,	,,		29·90	65. 28. 31·04
	12	☽ N. L.....	C	2·264	·670	·220	·213	·411	·366	20·939	2	49·94					14·67	24. 31. 19·64
	13	☽ N. L.....	C	,,	,,	,,	,,	,,	,,	21·075	4	49·77						
	14	☽ N. L.*.....	C	,,	,,	,,	,,	,,	,,	21·140	5	49·67	37. 0. 28·86	30·09	46·4		44·37	75. 13. 33·55
	15	☽ N. L.....	C	,,	,,	,,	,,	,,	,,	21·210	6	49·78						
	16	☽ N. L.....	C	,,	,,	,,	,,	,,	,,	21·276	7	49·81						
	17	51 Cancri	C	2·036	·455	·016	·018	·224	·185	20·897		32·52	18. 30. 11·59	,,	,,		19·71	57. 1. 53·11
	18	α Cancri	C	1·384	·810	·336	·339	·546	·510	23·550		9·72	39. 5. 48·79	,,	,,		47·83	77. 37. 58·42
	19	66 Cancri.....	C	3·410	·836	·395	·409	·597	·549	22·146		34·17	18. 42. 13·24	,,	,,		19·94	57. 13. 54·99
	20	κ Cancri.....	C	2·630	·070	·602	·594	·780	·744	21·220		17·54	40. 15. 56·61	,,	,,		49·86	78. 48. 8·27
	21	α Lyncis	C	3·560	·970	·541	·555	·765	·720	19·875		36·32	16. 31. 15·39	,,	,,		17·47	55. 2. 54·66
	22	h Ursæ Majoris..R.	C	2·574	·980	·528	·524	·740	·710	18·720	3	0·25	−12. 9. 39·32	,,	,,		12·69	26. 21. 29·79
	23	h Ursæ Majoris....	C	0·504	·912	·479	·504	·730	·692	24·350	6	41·44	−12. 9. 39·49	,,	,,			26. 21. 29·62
	24	Piazzi IX. 124.....	C	0·110	·520	·084	·085	·310	·260	20·520		22·86	19. 43. 1·93	,,	,,		21·11	58. 14. 44·84
	25	12 Leonis.....	C	1·976	·376	·934	·951	·032	·089	21·530		45·29	25. 30. 24·36	,,	,,		28·10	64. 2. 14·26
	26	13 Leonis.....	C	3·420	·816	·385	·390	·560	·530	22·366		39·65	24. 57. 18·72	30·09	44·5		27·51	63. 29. 8·03
	27	16 Leonis Minoris..	C	0·310	·720	·280	·276	·501	·446	21·184		54·22	11. 13. 33·29	,,	,,		11·74	49. 45. 6·83
	28	20 Leonis MinorisR.	C	3·066	·465	·030	·054	·280	·244	20·750	1	32·32	18. 53. 48·61	,,	,,		20·24	57. 25. 30·65
	29	20 Leonis Minoris .	C	0·150	·564	·155	·146	·340	·306	22·045	6	10·40	18. 53. 49·47	,,	,,			57. 25. 31·51
	30	Piazzi IX. 254	C	0·770	·175	·725	·754	·950	·918	22·520		2·01	10. 9. 41·08	,,	43·7		10·62	48. 41. 13·50
	31	23 Leonis Minoris .	C	2·141	·560	·114	·124	·325	·270	20·406	5	24·06	21. 30. 3·13	,,	,,		23·33	60. 1. 48·26
	32	Wire (Nadir Obs.) R.	C	2·060	·501	·042	·036	·242	·232	20·465		21·42	....					....
	33	15 Comæ	C	4·411	·823	·396	·385	·582	·536	21·419		13·72	22. 27. 52·79	30·06	43·0		24·50	60. 59. 39·09
	34	22 Comæ	C	3·760	·164	·744	·755	·940	·870	21·469		34·85	26. 27. 13·92	,,	,,		29·48	64. 59. 5·20
	35	25 Comæ	C	0·820	·230	·796	·786	·984	·924	20·560		6·02	33. 38. 45·09	,,	,,		39·42	72. 10. 46·31
	36	d^1 Virginis.....	C	4·151	·549	·131	·120	·298	·280	17·396		57·32	43. 55. 36·39	,,	,,		57·02	82. 27. 55·21
	37	Polaris S.P.....	C	2·824	·229	·838	·807	·040	·986	19·754		48·61	−39. 54. 32·32	30·02	42·6		49·50	−1. 24. 0·02
April 13	38	Wire (Nadir Obs.) R.	E	2·090	·489	·048	·029	·259	·259	20·421		20·74	....					....

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″		″	′ ″	′ ″
12, &c.	+ 1·61	34. 59·35	15. 57·82				

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″		″		″		″
1, 2	+ 0·79	11	+ 4·16	25	− 8·16	35	− 8·55
3, 4	− 5·06	17	− 5·85	26	− 7·99	36	− 9·66
5	− 9·72	18	− 12·86	27	− 3·73	37	− 1·06
6	− 9·53	19	− 5·94	28, 29	− 6·22		
7	− 8·86	20	− 13·17	30	− 3·57		
8	− 0·76	21	− 5·27	31	− 6·93		
9	− 4·80	22, 23	+ 3·11	33	− 7·01		
10	− 8·78	24	− 6·33	34	− 7·59		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·501.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction, = + 7′·39·″07.

5, 10. Faint.
7, 8. Cloudy.
12, &c. A correction of + 0″·05 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.
19. North preceding star observed.
22, 28. Reflected image very bad.
36. The division under microscope D being obliterated by a scratch, the reading was supplied by comparison with neighbouring observations.
36, 37. Very cloudy.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
April 27	1	85 Leonis.....	K	1·455	·813	·430	·398	·574	·561	20·258	5	34·42	35. 19. 13·64	29·49	46·0		40·92	73. 51. 16·36
	2	88 Leonis.....	K	3·536	·881	·485	·444	·622	·624	21·106	5	6·12	36. 21. 45·34	29·49	45·5		42·56	74. 53. 49·70
	3	ω Virginis	K	2·386	·760	·361	·320	·510	·510	21·234		1·57	42. 35. 40·79	,,	,,		53·13	81. 7. 55·72
	4	Piazzi XI. 146	K	1·536	·872	·521	·455	·668	·657	23·395		12·97	9. 0. 52·19	,,	,,		9·18	47. 32. 23·17
	5	* R.A. 11h. 44m. (6s.)	K	3·977	·352	·970	·918	·114	·094	20·488		17·38	38. 26. 56·60	,,	,,		45·89	76. 59. 4·29
	6	A^2 Virginis	K	3·744	·116	·706	·678	·850	·846	20·920		15·06	42. 16. 54·28	29·50	45·2		52·60	80. 49. 8·68
	7	Piazzi XIII. 133 R.	K	3·241	·600	·201	·189	·347	·349	19·660		7·16	−27. 50. 46·38	29·50	42·2		30·77	10. 40. 4·65
	8	Piazzi XIII. 133...	K	1·106	·450	·096	·047	·262	·273	20·795	7	34·32	−27. 50. 46·46	,,	,,			10. 40. 4·57
	9	τ^1 Boötis.....R.	K	0·472	·816	·426	·419	·608	·622	22·150	3	31·65	33. 20. 49·13	,,	,,		38·32	71. 52. 49·25
	10	τ^1 Boötis	K	3·409	·746	·391	·350	·507	·501	19·470	7	9·81	33. 20. 49·03	,,	,,			71. 52. 49·15
	11	10 Boötis.....	K	9·970	·339	·981	·942	·116	·093	19·548		44·09	29. 7. 23·31	,,	,,		32·45	67. 39. 17·56
	12	Piazzi XIII. 163...	K	1·470	·812	·441	·405	·596	·594	20·242		35·69	6. 59. 14·91	,,	41·5		7·15	45. 30. 43·86
	13	A Boötis	K	3·912	·240	·859	·822	·042	·022	18·631	5	16·91	15. 20. 56·13	,,	,,		16·01	53. 52. 33·94
	14	52 Hydræ	K	4·422	·799	·429	·401	·572	·568	19·176		7·17	80. 16. 46·39	29·51	41·1		5. 28·73	118. 53. 36·92
	15	Wire (Nadir Obs.) R.	K	1·934	·330	·930	·898	·089	·094	20·734		20·55	....					....
	16	☽ N. L.	C	0·386	·810	·394	·374	·532	·510	23·431	3	2·45	63. 54. 42·71	29·59	47·0		1. 57·59	101. 53. 24·57
	17	☽ N. L.	C	,,	,,	,,	,,	,,	,,	23·416	4	4·53						
April 29	18	☉ S. L.	E	1·769	·161	·708	·695	·897	·867	20·563	2	4·00	37. 19. 43·30	29·81	51·9	51·5	43·98	75. 35. 49·23
	19	☉ N. L.	E	4·798	·202	·718	·721	·922	·880	20·718		13·87	36. 47. 53·17	,,	,,		43·14	75. 35. 47·33
	20	Wire (Nadir Obs.) R.	E	1·986	·347	·953	·946	·122	·146	20·671		21·22	....					....
	21	48 Leonis Minoris..	E	3·546	·806	·482	·457	·635	·621	20·356		44·70	25. 16. 24·00	29·81	48·4	53·0	27·43	63. 48. 13·23
	22	Lalande (F) 1729..	E	3·953	·250	·919	·881	·073	·082	21·808		54·98	−36. 52. 25·72	,,	,,		43·47	1. 38. 12·61
	23	Piazzi XI. 22	E	0·036	·360	·977	·962	·156	·152	22·227		5·58	37. 53. 44·88	,,	48·2		45·23	76. 25. 51·91
	24	85 Leonis.....	E	4·557	·867	·531	·502	·638	·660	23·955		34·34	35. 19. 13·64	,,	,,		41·17	73. 51. 16·61
	25	88 Leonis.....	E	3·584	·874	·522	·484	·665	·672	21·017		6·47	36. 21. 45·77	,,	,,		42·78	74. 53. 50·35
	26	92 Leonis.....	E	4·700	·995	·666	·625	·794	·810	20·613		2·14	29. 22. 41·44	,,	,,		32·72	67. 54. 35·96
	27	Piazzi XI. 164	E	4·714	·006	·633	·639	·856	·825	21·421	1	31·26	15. 48. 10·56	29·80	47·4		16·48	54. 19. 48·84
	28	* R.A. 11h. 44m. (6s.)	E	3·877	·206	·822	·798	·008	·982	20·768		18·67	38. 26. 57·97	,,	,,		46·19	76. 59. 5·96
	29	η Crateris.....	E	3·464	·806	·492	·438	·584	·601	19·910		29·45	67. 51. 8·75	,,	,,		2. 22·03	106. 24. 52·58
	30	2 Comæ (2nd Star).	E	3·602	·906	·577	·512	·698	·700	19·812		32·83	29. 16. 12·13	,,	,,		32·62	67. 48. 6·55
	31	Piazzi XII. 3	E	4·516	·820	·486	·456	·612	·621	19·502		20·71	23. 27. 0·01	,,	,,		25·25	61. 58. 47·06
	32	10 Comæ	E	3·400	·704	·347	·327	·508	·508	20·018		27·27	22. 16. 6·57	,,	,,		23·84	60. 47. 52·21
	33	Piazzi XII. 75	E	4·152	·479	·137	·083	·278	·256	22·944	1	42·31	26. 48. 21·61	,,	,,		29·41	65. 20. 12·82
	34	16 Comæ	E	2·074	·398	·020	·028	·168	·194	19·528		51·46	23. 54. 30·76	,,	,,		25·80	62. 26. 18·36
	35	Piazzi XII. 122 ...	E	4·327	·650	·269	·266	·463	·446	24·718	1	45·85	17. 29. 25·15	,,	,,		18·34	56. 1. 5·29
	36	25 Comæ	E	0·380	·716	·347	·315	·452	·482	21·434	1	4·32	33. 38. 43·62	,,	,,		38·73	72. 10. 44·15
	37	d^1 Virginis	E	0·491	·850	·432	·423	·610	·625	14·890		57·06	43. 55. 36·36	,,	,,		56·02	82. 27. 54·18
	38	d^2 Virginis	E	2·725	·028	·646	·628	·808	·797	16·788	5	8·15	43. 3. 47·45	,,	,,		54·36	81. 36. 3·61
	39	29 Comæ	E	4·565	·894	·520	·484	·656	·660	19·593		25·60	36. 37. 4·90	29·79	45·7		43·38	75. 9. 10·08
	40	37 Comæ	E	0·823	·120	·790	·785	·962	·955	19·312		28·97	19. 58. 8·27	,,	,,		21·22	58. 29. 51·29
	41	41 Comæ	E	3·710	·020	·698	·654	·825	·803	12·904		16·19	23. 7. 55·49	,,	,,		24·94	61. 39. 42·23

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
16, 17	− 2·94	49. 49·07	15. 11·54					1	− 8·45	11	− 4·56	25	− 8·54	33	− 5·11
18	− 0·18	5·35	15. 54·50					2	− 8·73	12	− 2·12	26	− 6·36	34	− 4·37
19		5·28						3	− 10·19	13	− 3·07	27	− 2·40	35	− 2·90
								4	− 1·21	14	− 5·25	28	− 8·60	36	− 6·41
								5	− 8·79	21	− 5·78	29	− 15·26	37	− 8·40
								6	− 9·64	22	+ 8·96	30	− 5·96	38	− 8·11
								7, 8	+ 3·53	23	− 9·27	31	− 4·43	39	− 6·76
								9, 10	− 5·19	24	− 8·25	32	− 4·09	40	− 3·29
														41	− 3·89

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4r·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

11. The microscope readings have been decreased 1r. The cross-wires of microscopes A, C, and D fell on the negative side of the micrometer-zeros. The fractional parts of the readings were taken from the micrometer-heads, the integer 9 representing −1.

16, 17. Observation not considered good, owing to the extreme faintness of the limb. The readings of the barometer and thermometer were obtained from the Meteorological Registers.

18, 19. The microscopes were read by W and H C.

23. The cross-wires of microscopes C and D fell on the negative side of the micrometer-zeros. The fractional parts of the readings were taken from the micrometer-heads.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N. P. D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
April 29	1	Polaris S.P.	E	2·532	·868	·525	·478	·675	·682	20·225		42·42	−39. 54. 38·28	29·79	45·7		48·81	− 1. 24. 5·29
	2	Spica	E	2·025	·395	·008	·004	·142	·144	20·440		16·07	61. 54. 55·37	,,	,,		1. 49·00	100. 28. 6·17
	3	B. F. 1857	E	4·792	·108	·780	·734	·918	·905	20·532	5	8·25	26. 32. 47·55	29·77	45·4		29·17	65. 4. 38·52
	4	2 Boötis	E	4·068	·381	·014	·000	·168	·162	22·384		17·73	28. 17. 57·03	,,	,,		31·44	66. 49. 50·27
	5	Groombridge 2091 R.	E	4·449	·773	·426	·377	·567	·602	24·718	2	51·75	−18. 34. 31·05	29·76	44·6	49·5	19·65	19. 56. 31·10
	6	Groombridge 2091	E	2·417	·769	·386	·372	·566	·597	20·739	5	50·05	−18. 34. 30·65	,,	,,			19. 56. 31·50
	7	*f* Boötis R.	E	0·526	·841	·460	·475	·662	·686	26·623	1	47·45	31. 38. 33·25	,,	,,		36·02	70. 10. 31·07
	8	*f* Boötis	E	1·741	·012	·680	·663	·807	·810	18·333	7	52·24	31. 38. 31·54	,,	,,			70. 10. 29·36
	9	Saturn N. L.	E	4·082	·424	·078	·047	·197	·188	19·178	1	46·00	67. 16. 25·30	29·75	43·2	47·0	2. 19·04	105. 50. 13·62
	10	Saturn S. L.	E	,,	,,	,,	,,	,,	,,	19·901	2	7·12	67. 16. 46·42	,,	,,		2. 19·09	105. 50. 17·99
April 30	11	ζ^1 Cephei S.P.	JC	4·176	·508	·172	·154	·330	·344	24·890		41·33	−64. 30. 39·37	29·71	47·9		2. 1·00	−26. 1. 18·57
	12	ζ^2 Cephei S.P.	JC	,,	,,	,,	,,	,,	,,	24·817		39·17	−64. 30. 41·53	,,	,,		2. 1·00	−26. 1. 20·73
	13	28 Leonis Minoris	JC	0·670	·011	·664	·604	·818	·820	23·361		19·96	17. 4. 59·26	,,	47·8		17·82	55. 36. 38·88
	14	33 Leonis Minoris	JC	0·696	·039	·677	·628	·832	·836	22·762		3·40	18. 24. 42·70	,,	,,		19·30	56. 56. 23·80
	15	35 Leonis Minoris	JC	4·184	·526	·147	·101	·326	·305	21·181		50·52	14. 27. 29·82	,,	,,		14·95	52. 59. 6·57
	16	36 Leonis Minoris	JC	4·046	·374	·015	·973	·184	·166	21·162		41·55	16. 42. 20·85	,,	,,		17·40	55. 14. 0·05
	17	Piazzi X. 131	JC	1·140	·484	·114	·077	·290	·278	22·116		11·75	19. 4. 51·05	29·71	47·7		20·06	57. 36. 32·91
	18	42 Leonis Minoris	JC	1·615	·953	·586	·556	·751	·754	22·317		46·92	20. 5. 26·22	,,	,,		21·22	58. 37. 9·24
	19	44 Leonis Minoris	JC	4·026	·365	·002	·964	·167	·133	22·104		8·62	22. 47. 47·92	,,	,,		24·38	61. 19. 34·10
	20	47 Leonis Minoris	JC	0·214	·562	·213	·157	·380	·358	21·826		6·74	16. 43. 46·04	,,	,,		17·43	55. 15. 25·27
	21	50 Leonis Minoris	JC	2·061	·396	·032	·006	·192	·164	21·938		2·42	25. 15. 41·72	29·72	47·3		27·40	63. 47. 30·92
	22	49 Ursæ Majoris	JC	3·891	·224	·838	·813	·022	·997	22·649		15·42	11. 32. 54·72	,,	,,		11·87	50. 4. 28·39
	23	Wire (Nadir Obs.) R.	JC	1·334	·673	·276	·254	·455	·479	22·036		20·34	....					....
	24	71 Leonis	JC	4·216	·570	·184	·143	·325	·312	22·466		29·60	33. 18. 8·90	,,	,,		38·13	71. 50. 8·83
	25	85 Leonis	JC	0·858	·220	·836	·789	·973	·964	21·503		35·06	35. 19. 14·36	29·72	47·6	50·0	41·10	73. 51. 17·26
	26	Piazzi XI. 146	JC	2·462	·813	·406	·388	·603	·585	21·451		12·49	9. 0. 51·79	,,	,,		9·21	47. 32. 22·80
	27	Piazzi XI. 164	JC	3·858	·193	·807	·779	·014	·973	23·220		30·78	15. 48. 10·08	,,	,,		16·42	54. 19. 48·30
	28	* R.A. $11^h.44^m.(6^s.)$.	JC	2·826	·182	·767	·737	·948	·928	22·946		18·51	38. 26. 57·81	29·73	47·3		46·09	76. 59. 5·70
	29	2 Comæ (2nd Star)	JC	1·636	·985	·614	·556	·764	·735	23·858		32·63	29. 16. 11·93	,,	,,		32·55	67. 48. 6·28
	30	Bradley 1634 R.	JC	3·129	·448	·083	·053	·233	·244	23·041	2	39·02	−26. 52. 18·32	,,	,,		29·43	11·38. 34·05
	31	Bradley 1634	JC	4·196	·512	·144	·088	·353	·327	21·596		2·87	−26. 52. 17·83	,,	,,		23·78	11. 38. 34·54
	32	10 Comæ	JC	2·536	·884	·505	·473	·566	·652	21·793		26·73	22. 16. 6·03	,,	,,		29·43	60. 47. 51·61
	33	Piazzi XII. 75	JC	4·220	·578	·212	·166	·372	·346	22·781		40·95	26. 48. 20·25	29·74	46·0		9·64	65. 20. 11·48
	34	β Canum Venat. R.	JC	2·160	·518	·107	·093	·306	·314	23·016	2	41·38	9. 23. 39·32	,,	,,		56·07	47. 55. 10·76
	35	β Canum Venaticûm	JC	4·834	·164	·776	·743	·974	·955	22·228	7	0·43	9. 23. 39·73	,,	,,		44·18	47. 55. 11·17
	36	d^1 Virginis	JC	1·736	·097	·704	·658	·861	·855	22·436		57·10	43. 55. 36·40	,,	,,		46·05	82. 27. 54·27
	37	28 Comæ	JC	2·339	·701	·303	·258	·466	·447	22·393		32·57	37. 11. 11·87	,,	,,		19·09	75. 43. 17·85
	38	41 Virginis	JC	0·989	·362	·957	·926	·132	·105	21·667		48·76	38. 19. 28·06	29·74	45·7		2. 18·71	76. 51. 35·91
	39	50 Boötis	JC	4·236	·588	·218	·184	·382	·367	23·471		2·38	18. 3. 41·68	29·76	44·1		2. 18·75	56. 35. 22·57
	40	Saturn N. L.	JC	1·246	·633	·244	·219	·395	·386	22·819	2	40·35	67. 15. 19·65	,,	,,			105. 49. 7·64
	41	Saturn S. L.	JC	,,	,,	,,	,,	,,	,,	23·416		57·30	67. 15. 36·60	,,	,,			105. 49. 7·83

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″
9, 10	− 0·01	0·92	8·40
40, 41	− 0·01	0·92	8·40

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″		″		″		″
1	− 6·06	13	− 3·40	21	− 5·65	30, 31	+ 6·54
2	− 9·14	14	− 3·73	22	− 1·44	32	− 3·92
3	− 4·21	15	− 2·46	24	− 7·69	33	− 4·96
4	− 4·33	16	− 3·16	25	− 8·13	34, 35	− 0·97
5, 6	+ 1·46	17	− 3·85	26	− 0·65	36	− 8·32
7, 8	− 4·02	18	− 4·14	27	− 2·45	37	− 6·77
11	− 10·52	19	− 4·94	28	− 8·50	38	− 6·85
12	− 10·52	20	− 3·06	29	− 5·82	39	− 2·80

Adopted Colatitude = 38°. 31′. 21″·80.

General correction for runs for 100″ = + 0″·297; from April 29, + 0″·496.

Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.

Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².

Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.

Zenith Point Correction = + 7′. 39″·22; from April 29, + 7′.39″·30.

3. The second of two stars observed. The readings of microscopes D and F were set down 4ʳ·867 and 5ʳ·040; it is supposed that they were read on the negative side of the micrometer-zero.

4. The readings of microscopes D and F were set down 4ʳ·130 and 4ʳ·297; it is supposed that they were read on the negative side of the micrometer-zero.

36. The division under microscope D being spoilt by a scratch, the reading was supplied by comparison with neighbouring observations.

40, 41. Faint; cloudy.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle-Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
May 4	1	⊙ S. L.	D	0·780	·055	·664	·612	·791	·842	21·973	2	40·57	35. 49. 19·87	30·07	64·8	61·0	40·92	74. 5. 24·14
	2	⊙ N. L.	D	4·326	·576	·209	·121	·322	·358	21·317		57·34	35. 17. 36·64	,,	,,		40·13	74. 5. 26·78
	3	Aldebaran	D	0·692	·939	·628	·519	·699	·760	21·045		7·12	35. 13. 46·42	30·05	65·7	62·0	39·93	73. 45. 48·15
	4	Bradley 1521	D	1·588	·801	·529	·421	·657	·726	20·748		54·93	−24. 40. 25·77	30·02	52·8	56·2	26·64	13. 50. 29·39
	5	67 Leonis	D	0·820	·061	·775	·682	·867	·919	24·398		55·93	26. 5. 35·23	,,	,,		28·40	64. 37. 25·43
	6	Piazzi XI. 22	D	0·5c2	·768	·451	·353	·557	·601	21·325		5·42	37. 53. 44·72	,,	52·3		45·17	76. 25. 51·69
	7	σ Leonis	D	4·211	·450	·146	·052	·237	·286	21·076		45·17	44. 42. 24·47	,,	,,		57·41	83. 14. 43·68
	8	71 Leonis	D	0·489	·750	·451	·350	·537	·572	20·141		29·09	33. 18. 8·39	,,	,,		38·13	71. 50. 8·32
	9	85 Leonis	D	0·340	·611	·306	·198	·397	·442	22·641	2	35·45	35. 19. 14·75	,,	52·2		41·13	73. 51. 17·68
	10	86 Leonis	D	1·890	·131	·851	·747	·941	·982	20·251		58·47	32. 19. 37·77	,,	,,		36·74	70. 51. 36·31
	11	92 Leonis	D	3·996	·205	·950	·832	·011	·047	22·210		4·77	29. 22. 44·07	,,	52·0		32·70	67. 54. 38·57
	12	Piazzi XI. 146	D	2·348	·571	·266	·157	·382	·422	21·828		12·24	9. 0. 51·54	,,	,,		9·22	47. 32. 22·56
	13	Piazzi XI. 164	D	4·804	·030	·749	·641	·864	·892	21·366		30·81	15. 48. 10·11	,,	,,		16·44	54. 19. 48·35
	14	Bradley 1614	D	4·840	·087	·813	·712	·904	·941	21·334		32·96	79. 8. 12·26	30·01	51·7		4. 53·80	117. 44. 27·86
	15	Wire (Nadir Obs.) R.	D	1·096	·331	·038	·935	·148	·222	22·629		20·46	....					....
	16	Bradley 1633	D	3·829	·038	·759	·637	·892	·941	23·415		30·86	−26. 41. 49·84	,,	51·8		29·21	11. 49. 2·75
	17	Brad. 1642 (1st Star)	D	3·397	·612	·349	·231	·460	·521	22·640	5	42·39	−29. 22. 38·31	,,	,,		32·70	9. 8. 10·79
	18	Brad. 1642 (2d Star)	D	,,	,,	,,	,,	,,	,,	22·262	5	31·20	−29. 22. 49·50	,,	,,			9. 7. 59·60
	19	4 Draconis R.	D	3·857	·c60	·8c6	·698	·898	·941	21·861	3	47·29	−18. 27. 26·59	,,	,,		19·39	20. 3. 35·82
	20	4 Draconis	D	4·021	·234	·952	·860	·085	·151	21·760	5	54·53	−18. 27. 26·17	,,	,,			20. 3. 36·24
	21	ρ Virginis	D	1·145	·391	·080	·994	·173	·236	22·105	5	6·96	40. 29. 46·26	,,	51·7		49·59	79. 1. 57·65
	22	31 Comæ R.	D	3·802	·022	·738	·639	·877	·934	22·326	1	58·48	23. 12. 22·22	,,	,,		24·91	61. 44. 8·93
	23	31 Comæ	D	3·458	·680	·407	·311	·490	·535	22·549	5	42·59	23. 12. 21·89	,,	,,			61. 44. 8·60
	24	e Virginis	D	1·891	·132	·818	·731	·902	·969	22·391		1·17	41. 20. 40·47	,,	51·3		51·13	79. 52. 53·40
	25	Piazzi XIII. 41	D	2·098	·340	·039	·930	·128	·180	21·452	5	45·87	37. 5. 25·17	,,	,,		43·95	75. 37. 30·92
	26	Saturn S. L.	D	3·154	·432	·169	·047	·218	·258	20·581	5	27·26	67. 11. 6·56	30·00	49·7	54·0	2. 17·76	105. 44. 36·80
	27	Saturn N. L.	D	,,	,,	,,	,,	,,	,,	20·018	6	10·09	67. 10. 49·39	,,	,,		2. 17·72	105. 44. 36·39
	28	Pallas	D	1·695	·960	·672	·562	·771	·786	20·792	5	3·35	26. 59. 42·65	,,	49·6		29·72	65. 31. 32·15
May 5	29	Venus N. L.	C	1·450	·706	·410	·284	·479	·531	20·119	1	28·12	49. 29. 7·42	29·91	71·3	65·0	1. 5·07	88. 1. 35·57
	30	Venus S. L.	C	,,	,,	,,	,,	,,	,,	20·630	2	43·05	49. 29. 22·35	,,	,,		1. 5·08	88. 1. 37·35
	31	Polaris	C	0·670	·854	·620	·474	·690	·780	20·407		47·95	−37. 6. 32·75	,,	72·6		42·00	1. 24. 7·05
	32	Mercury, center	C	3·236	·414	·204	·054	·254	·316	19·187	5	48·87	45. 35. 28·17	29·93	73·5	68·5	56·58	84. 7. 40·44
May 6	33	⊙ N. L.	C	0·395	·631	·368	·182	·384	·455	20·676	1	38·50	34. 43. 17·80	29·94	77·3	68·3	38·17	73. 31. 5·66
	34	⊙ S. L.	C	2·463	·681	·431	·242	·444	·515	19·954	3	23·33	35. 15. 2·63	,,	,,		38·92	73. 31. 5·37
	35	Piazzi XI. 22	C	1·136	·247	·090	·860	·080	·190	20·140		4·97	37. 53. 44·27	29·92	69·4		43·50	76. 25. 49·57
	36	71 Leonis	C	0·420	·540	·394	·178	·374	·471	20·440		30·07	33. 18. 9·37	,,	,,		36·72	71. 50. 7·89
	37	57 Ursæ Majoris	C	1·245	·342	·185	·997	·210	·329	21·097		40·66	11. 24. 19·96	,,	,,		11·28	49. 55. 53·c4
	38	3 Comæ	C	2·580	·730	·565	·341	·525	·636	19·998		30·34	33. 55. 9·64	,,	67·0		37·77	72. 27. 9·21
	39	10 Comæ	C	3·730	·869	·684	·496	·690	·794	19·519		27·80	22. 16. 7·10	,,	,,		23·00	60. 47. 51·90
	40	Piazzi XII. 75	C	1·190	·345	·147	·960	·165	·267	19·186		41·64	26. 48. 20·94	,,	,,		28·38	65. 20. 11·12

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
1		5·15						3	− 10·12	11	− 5·74	21	− 7·23	38	− 6·17
2	− 0·17	5·09	15. 53·30					4	+ 7·97	12	+ 0·06	22, 23	− 4·72	39	− 2·93
26, 27	− 0·01	0·92	8·40					5	− 5·28	13	− 1·78	24	− 6·23	40	− 4·05
28	− 0·09	2·02						6	− 8·83	14	− 17·72	25	− 5·53		
29, 30	− 0·26	5·52	6·80					7	− 10·47	16	+ 7·41	31	− 7·71		
32	− 0·35	6·11						8	− 7·27	17	+ 7·72	35	− 8·65		
33	− 0·16	5·01	15. 52·90					9	− 7·75	18	+ 7·72	36	− 7·07		
34		5·08						10	− 6·81	19, 20	+ 5·71	37	− 0·36		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4′·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

1, 2. The microscopes were read by W and H C.

30. Computed distance of limb from illuminated edge, 20°. 45′; correction applied, +0″·44.

33, 34. The microscopes were read by K and H C.

26, 27. Very cloudy; hardly visible.

32. Very tremulous indeed; hardly visible.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle Reading	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D of Center
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′
May 6	1	Piazzi XII. 122 ...	C	0·570	·721	·550	·352	·585	·677	22·580		45·27	17. 29. 24·57	29·92	66·6		17·72	56. 1. 4·09
	2	Groombridge 1923R.	C	0·701	·790	·640	·444	·599	·769	20·290	3	41·49	−32. 53. 20·79	,,	,,		36·35	5. 37. 24·66
	3	Groombridge 1923 .	C	3·115	·211	·060	·866	·079	·204	21·960		1·69	−32. 53. 19·01	,,	,,			5. 37. 26·44
	4	12 Canum Venat. R.	C	0·196	·363	·169	·974	·225	·346	22·084	1	8·61	12. 26. 12·09	,,	67·5		12·38	50. 57. 46·27
	5	12 Canum Venat. ..	C	2·706	·806	·628	·464	·652	·779	21·860	7	32·20	12. 26. 11·50	,,	,,			50. 57. 45·68
	6	Bradley 1745.....	C	3·442	·551	·394	·214	·400	·506	22·169		28·09	23. 12. 7·39	,,	,,		24·06	61. 43. 53·25
	7	*e* Virginis.....	C	2·750	·850	·680	·474	·670	·800	20·824		3·96	41. 20. 43·26	,,	67·5		49·35	79. 52. 54·41
	8	65 Virginis	C	4·064	·164	·020	·805	·986	·105	18·807		23·08	55. 41. 2·38	,,	,,		1. 22·02	94. 13. 46·20
	9	Wire(Nadir Obs.) R.	C	1·904	·054	·880	·674	·882	·012	21·027		20·66	....					....
	10	Comet II. 1867	C	3·060	·182	·040	·812	·985	·109	21·596	7	44·82	53. 46. 24·12	29·91	64·4		1. 16·89	92. 18. 49·75
	11	Saturn N. L.....	C	0·365	·510	·378	·150	·337	·474	21·380	2	57·21	67. 8. 36·51	,,	,,		2. 13·03	105. 42. 18·82
	12	Saturn S. L.....	C	,,	,,	,,	,,	,,	,,	22·054	6	15·46	67. 8. 54·76	,,	,,		2. 13·06	105. 42. 20·30
	13	*θ* Coronæ	C	0·621	·749	·574	·366	·585	·710	23·206		5·33	19. 39. 44·63	,,	,,		20·17	58. 11. 26·60
	14	Pallas.....	C	4·270	·372	·222	·014	·211	·317	20·380		25·12	26. 42. 4·42	,,	64·4		28·39	65. 13. 52·61
May 7	15	☉ N. L.....	JC	3·492	·559	·428	·188	·386	·521	20·936	2	52·10	34. 26. 31·40	29·97	78·2	71·3	37·74	73. 14. 18·56
	16	☉ S. L.	JC	0·716	·771	·648	·402	·601	·749	20·070	5	34·47	34. 58. 13·77	,,	,,		38·49	73. 14. 16·42
	17	Aldebaran	JC	1·086	·174	·045	·794	·993	·136	20·444		9·80	35. 13. 49·10	29·97	78·9		38·81	73. 45. 49·71
	18	*η* Crateris.....	JC	3·112	·187	·124	·857	·023	·196	20·994		32·15	67. 51. 11·45	30·00	59·9		2. 19·37	106. 24. 52·62
	19	Wire (Nadir Obs.) R.	JC	2·070	·134	·033	·776	·972	·163	20·762		20·42	....					....
	20	Piazzi XII. 3.....	JC	3·919	·959	·886	·624	·814	·963	20·910		18·10	23. 26. 57·40	,,	59·0		24·83	61. 58. 44·03
	21	3 Canum Venat. ...	JC	2·889	·933	·829	·595	·804	·962	19·520		33·33	1. 45. 12·63	,,	,,		1·75	40. 16. 36·18
	22	*β* Canum Venat. R..	JC	1·866	·949	·819	·582	·803	·983	23·914	2	42·49	9. 23. 38·21	29·99	58·2		9·48	47. 55. 9·49
	23	*β* Canum Venat. ...	JC	0·343	·413	·289	·052	·266	·434	21·584	6	57·99	9. 23. 37·29	,,	,,			47. 55. 8·57
	24	Groombridge1923R.	JC	4·690	·752	·638	·101	·557	·737	22·110		37·44	−32. 53. 16·74	,,	,,		37·05	5. 37. 28·01
	25	Groombridge 1923 .	JC	3·746	·785	·704	·443	·648	·831	20·729	5	3·04	−32. 53. 17·66	,,	,,			5. 37. 27·09
	26	Bradley 1745.....	JC	2·388	·446	·332	·108	·280	·450	24·341		25·66	23. 12. 4·96	,,	57·0		24·62	61. 43. 51·38
	27	Piazzi XII. 283....	JC	4·862	·921	·813	·561	·734	·900	24·242		53·59	33. 54. 32·89	,,	,,		38·60	72. 26. 33·29
	28	*e* Virginis	JC	2·002	·056	·927	·677	·868	·048	22·370		2·06	41. 20. 41·36	,,	,,		50·51	79. 52. 53·67
	29	Piazzi XIII. 41....	JC	1·792	·865	·730	·492	·683	·843	22·171		43·99	37. 5. 23·29	,,	,,		43·41	75. 37. 28·50
	30	66 Virginis	JC	2·424	·468	·376	·129	·296	·472	20·956		46·37	55. 55. 25·67	29·98	56·7	60·5	1. 24·74	94. 28. 12·21
	31	B. F. 1857.....	JC	3·776	·825	·736	·513	·687	·835	22·814		6·07	26. 32. 45·37	,,	,,		28·70	65. 4. 35·87
	32	*η* Ursæ Majoris	JC	1·124	·193	·071	·835	·045	·195	22·550		14·80	1. 29. 54·10	,,	,,		1·50	40. 1. 17·40
	33	B. F. 1907.....	JC	3·140	·194	·109	·883	·078	·232	22·821		28·07	16. 22. 7·37	29·98	56·2		16·90	54. 53. 46·07
	34	Bradley 1848.....	JC	1·968	·032	·924	·695	·874	·023	23·309		28·86	31· 56. 8·16	29·98	55·7		35·88	70. 28. 5·84
	35	A Bootis..	JC	1·993	·049	·936	·724	·935	·078	22·819	5	18·17	15. 20. 57·47	,,	,,		15·81	53. 52. 35·08
	36	Groombridge 2100..	JC	0·008	·083	·956	·752	·946	·103	23·110		23·66	12. 4. 2·96	,,	,,		12·31	50. 35. 37·07
	37	Comet II. 1867	JC	1·119	·220	·096	·868	·033	·184	24·927	6	24·26	53. 51. 3·56	29·96	54·5		1. 18·80	92. 23. 31·32
	38	Saturn N. L.....	JC	4·719	·829	·700	·482	·634	·794	20·091		44·52	67. 7. 23·82	,,	,,		2. 15·81	105. 41. 8·91
	39	Saturn S. L.....	JC	,,	,,	,,	,,	,,	,,	20·744	6	2·89	67. 7. 42·19	,,	,,		2. 15·84	105. 41. 10·51
	40	Pallas.....	JC	0·720	·844	·686	·484	·667	·813	20·951		4·61	26. 33. 43·91	29·95	53·8		28·87	65. 5. 32·60
	41	(T) Coronæ	JC	1·793	·893	·742	·554	·715	·858	21·824		35·61	25. 10. 14·91	,,	,,		27·13	63. 42. 3·84

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
10	+ 0·05	13·06						1	− 1·59	18	− 15·47	29	− 5·15	41	− 1·29
11, 12	− 0·01	0·92	8·40					2, 3	+ 8·05	20	− 3·18	30	− 8·30		
14		2·00						4, 5	− 0·33	21	+ 2·35	31	− 2·77		
15		4·98						6	− 2·61	22, 23	+ 0·70	32	+ 1·65		
16	− 0·16	5·04	15. 52·60					7	− 6·01	24, 25	+ 8·28	33	− 0·81		
37	+ 0·05	12·84						8	− 8·36	26	− 2·42	34	− 2·90		
38, 39	− 0·01	0·92	8·40					13	− 1·46	27	− 4·68	35	− 0·68		
40		1·98						17	− 10·09	28	− 5·90	36	− 0·24		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = +0″·496; from May 5, +0″·599.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = −0″·436 × (wire−4), for objects above the pole.
Zenith Point Correction = + 7′. 39″·30.

4, 5. 31. The second of two stars observed.
4. The cross-wires of microscope D fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head.
10. An extremely faint object; observed only with great difficulty.
11, 12. Image very diffused and tremulous. The limbs of the planet being hidden by the ring, the latter was the part observed.
15, 16. The microscopes were read by W and H C. 17. Very faint. 37. Very faint. Condensation as bright as a star of the 10th–11th magnitude.
38, 39. Definition extremely bad. 41. About the 8½ magnitude, but owing to the extremely bad definition of the stars this estimation is somewhat doubtful.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
May 17	1	☽ N. L.	s	2·169	·564	·156	·153	·339	·305	21·280	2	55·11						
	2	☽ N. L.	s	,,	,,	,,	,,	,,	,,	21·421	4	55·25						
	3	☽ N. L.	s	,,	,,	,,	,,	,,	,,	21·453	5	54·10	65. 35. 33·67	30·05	40·5		2. 10·50	103. 34. 26·92
	4	☽ N. L.	s	,,	,,	,,	,,	,,	,,	21·621	7	54·73						
	5	θ Libræ	s	2·869	·255	·881	·872	·036	·019	21·662		46·14	67. 46. 25·01	,,	,,		2. 24·73	106. 20. 11·54
	6	(T) Coronæ	s	1·032	·383	·001	·014	·197	·159	23·075	7	32·47	25. 10. 11·34	,,	,,		27·98	63. 42. 1·12
May 18	7	☉ S. L.	c	4·671	·004	·601	·582	·797	·750	21·936	1	42·82	32. 13. 21·69	29·98	60·0	55·0	35·97	70. 29. 24·38
	8	☉ N. L.	c	3·155	·512	·088	·092	·286	·248	21·783		4·44	31. 41. 43·31	,,	,,		35·24	70. 29. 26·14
	9	β Tauri	c	0·972	·340	·964	·964	·143	·118	22·550	5	15·30	22. 59. 54·17	29·97	60·4		24·20	61. 31. 40·17
	10	Piazzi XI. 146	c	3·196	·500	·106	·098	·310	·289	19·861		9·15	9. 0. 48·02	29·92	49·6		9·23	47. 32. 19·05
	11	Piazzi XI. 164	c	0·091	·434	·036	·046	·266	·242	20·798		28·45	15. 48. 7·32	,,	,,		16·47	54. 19. 45·59
	12	Bradley 1614	c	0·386	·748	·363	·386	·545	·552	20·290		32·36	79. 8. 11·23	,,	49·3		4. 54·40	117. 44. 27·43
	13	Piazzi XII. 3	c	4·083	·429	·039	·041	·211	·196	20·210		16·26	23. 26. 55·13	,,	,,		25·25	61. 58. 42·18
	14	Brad. 1642 (1st Star)	c	4·394	·730	·318	·313	·541	·540	20·389	5	40·32	−29. 22. 40·81	,,	,,		32·77	9. 8. 8·22
	15	Brad. 1642 (2d Star)	c	,,	,,	,,	,,	,,	,,	20·004	5	28·92	−29. 22. 52·21	,,	,,		32·77	9. 7. 56·82
	16	β Canum Venat. R.	c	2·679	·035	·615	·614	·855	·836	22·044	1	44·92	9. 23. 36·21	29·92	48·0		9·66	47. 55. 7·67
	17	β Canum Venat.	c	4·779	·116	·696	·730	·915	·905	22·170	5	56·09	9. 23. 34·96	,,	,,			47. 55. 6·42
	18	Groombridge 1923 R.	c	4·640	·964	·560	·575	·727	·726	22·090	3	43·66	−32. 53. 22·53	,,	,,		37·74	5. 37. 21·53
	19	Groombridge 1923	c	3·700	·041	·640	·636	·847	·835	20·466		0·27	−32. 53. 20·86	,,	,,			5. 37. 23·20
	20	Wire (Nadir Obs.) R.	c	1·570	·940	·509	·540	·734	·736	21·543		21·84	....					....
	21	Piazzi XII. 283	c	4·836	·192	·770	·779	·936	·931	23·980		52·61	33. 54. 31·48	,,	47·8		39·24	72. 26. 32·52
	22	Polaris S. P.	c	0·655	·019	·614	·629	·825	·825	23·975		38·77	−39. 54. 42·36	,,	,,		48·81	−1. 24. 9·37
	23	Saturn N. L.	c	2·741	·130	·731	·724	·899	·880	19·038	2	20·73	66. 54. 59·60	29·88	45·8		2. 16·55	105. 28. 45·43
	24	Saturn S. L.	c	,,	,,	,,	,,	,,	,,	19·752	7	39·60	66. 55. 18·47	,,	,,		2. 16·58	105. 28. 47·43
	25	τ^1 Serpentis	c	1·384	·764	·345	·334	·534	·502	20·051		25·25	35. 34. 4·12	,,	,,		41·86	74. 6. 7·78
	26	γ Libræ	c	3·826	·200	·805	·794	·970	·956	21·110		27·30	65. 47. 6·17	,,	45·8		2. 9·48	104. 20. 37·45
	27	τ^6 Serpentis	c	2·358	·724	·314	·314	·480	·468	21·150		57·25	35. 0. 36·12	,,	,,		41·00	73. 32. 38·92
	28	κ Serpentis	c	1·228	·600	·195	·180	·369	·337	21·730		5·04	32. 54. 43·91	,,	,,		37·89	71. 26. 43·60
	29	θ Libræ	c	3·142	·526	·130	·139	·290	·279	21·145		46·99	67. 46. 25·86	29·88	45·7		2. 22·37	106. 20. 10·03
	30	λ Coronæ	c	4·836	·192	·780	·792	·980	·941	21·740		47·67	13. 8. 26·54	,,	,,		13·68	51. 40. 2·02
	31	(T) Coronæ	c	1·442	·815	·404	·430	·600	·571	22·220		34·09	25. 10. 12·96	,,	,,		27·52	63. 42. 2·28
	32	☽ N. L.	c	1·069	·469	·086	·093	·250	·235	22·124	1	14·39						
	33	☽ N. L.	c	,,	,,	,,	,,	,,	,,	22·175	2	14·39						
	34	☽ N. L.	c	,,	,,	,,	,,	,,	,,	22·219	3	14·15						
	35	☽ N. L.	c	,,	,,	,,	,,	,,	,,	22·302	4	14·97	67. 59. 52·89	29·86	45·4		2. 23·94	105. 58. 16·00
	36	☽ N. L.	c	,,	,,	,,	,,	,.	,,	22·300	5	13·22						
	37	☽ N. L.	c	,,	,,	,,	,,	,,	,,	22·413	7	13·01						
	38	B. F. 2244	c	1·603	·967	·562	·583	·760	·724	22·928		4·17	30. 0. 43·04	,,	,,		33·82	68. 32. 38·66
	39	ξ Coronæ	c	2·834	·204	·790	·806	·014	·971	21·134		28·02	20. 16. 6·89	,,	,,		21·63	58. 47. 50·32
	40	φ Ophiuchi	c	2·905	·298	·915	·934	·081	·066	19·542		46·14	67. 45. 25·01	29·86	45·1		2. 22·33	106. 19. 9·14
	41	24 Scorpii	c	0·975	·364	·980	·988	·145	·132	22·666	5	18·89	68. 54. 57·76	,,	,,		2. 30·85	107. 28. 50·41

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
1, &c.	+ 1·63	49. 33·14	14. 54·09					5	+ 0·10	15	+ 10·39	28	+ 0·72		
7		4·68						6	+ 0·97	16, 17	+ 2·79	29	+ 0·10		
8	− 0·13	4·61	15. 50·40					9	− 8·82	18, 19	+ 11·57	30	+ 1·83		
23, 24	− 0·01	0·92	8·40					10	+ 2·21	21	− 3·16	31	+ 1·20		
32, &c.	+ 1·22	50. 12·08	14. 49·45					11	+ 0·30	22	− 10·61	38	+ 1·23		
								12	− 18·48	25	− 0·08	39	+ 1·39		
								13	− 1·60	26	− 1·15	40	+ 2·54		
								14	+ 10·39	27	− 0·46	41	+ 3·32		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

6. Of the 8½ magnitude; the reading of the telescope-micrometer was set down 24ʳ·075.

7, 8. The microscopes were read by W and H C.

23, 24. Image much blurred and unsteady.

31. Of the 9th magnitude; the sky being rather cloudy at times, the estimation of magnitude is somewhat doubtful.

32, &c. Cloudy.

41. Extremely faint; cloudy.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Calculated Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
May 21.	1	29 Comæ	K	4·451	·796	·392	·368	·538	·549	19·772	5	23·04	36. 37. 1·91	29·75	43·6		43·50	75. 9. 7·21
	2	41 Virginis	K	1·539	·882	·501	·475	·640	·647	20·468		46·05	38. 19. 24·92	,,	,,		46·27	76. 51. 32·99
	3	1 Boötis	K	2·038	·378	·004	·970	·140	·139	21·251		39·44	30. 50. 18·31	29·76	43·0		35·02	69. 22. 15·13
	4	Piazzi XIII. 228	K	1·293	·649	·259	·230	·398	·388	21·630		4·96	34. 4. 43·83	,,	,,		39·67	72. 36. 45·30
	5	3 Ursæ Minoris	K	2·209	·520	·150	·139	·368	·372	21·252		51·14	−23. 44. 29·99	29·76	41·9		25·86	14. 46. 25·95
	6	A Boötis	K	3·025	·352	·995	·972	·168	·158	20·285	5	12·49	15. 20. 51·36	,,	,,		16·14	53. 52. 29·30
	7	Saturn S. L.	K	3·542	·888	·546	·495	·667	·664	21·594	2	23·98	66. 52. 2·85	29·78	40·5		2. 17·28	105. 25. 32·61
	8	Saturn N. L.	K	,,	,,	,,	,,	,,	,,	20·956	7	2·81	66. 51. 41·68	,,	,,		2. 17·24	105. 25. 28·20
	9	Groombridge 2253	K	3·348	·671	·291	·252	·465	·460	21·740		14·39	7. 51. 53·26	,,	,,		8·15	46. 23. 23·21
	10	τ^6 Serpentis	K	2·509	·841	·471	·419	·592	·585	20·884		56·72	35. 0. 35·59	,,	,,		41·32	73. 32. 38·71
	11	π Coronæ	K	4·025	·371	·984	·971	·156	·142	20·565		22·06	18. 32. 0·93	,,	,,		19·78	57. 3. 42·51
	12	κ Serpentis	K	1·895	·249	·868	·831	·000	·988	20·314		3·03	32. 54. 41·90	,,	40·2		38·20	71. 26. 41·90
	13	(T) Coronæ	K	0·441	·781	·398	·398	·559	·540	24·272		31·68	25. 10. 10·55	,,	,,		27·74	63. 42. 0·09
	14	κ Herculis	K	1·324	·699	·285	·272	·434	·432	19·545		5·59	34. 3. 44·46	29·79	39·8		39·95	72. 35. 46·21
	15	Bradley 2050	K	,,	,,	,,	,,	,,	,,	18·526	7	34·41	34. 3. 13·28	,,	,,		39·94	72. 35. 15·02
	16	12 Herculis	K	3·510	·869	·477	·454	·621	·616	19·384	5	15·05	43. 15. 53·92	,,	,,		55·59	81. 48. 11·31
	17	B. F. 2244	K	3·438	·795	·408	·384	·558	·534	19·124	5	2·61	30. 0. 41·48	,,	,,		34·14	68. 32. 37·42
	18	84 Herculis	K	2·179	·534	·160	·132	·318	·292	19·979		11·86	27. 4. 50·73	29·80	38·6		30·31	65. 36. 42·84
	19	98 Herculis	K	3·629	·982	·591	·579	·752	·710	18·372		52·39	29. 15. 31·26	,,	,,		33·20	67. 47. 26·26
	20	μ^1 Sagittarii	K	3·976	·354	·985	·962	·118	·120	18·150		9·01	72. 30. 47·88	29·81	38·3		3. 6·23	111. 5. 15·91
	21	Bradley 2313	K	2·570	·965	·566	·554	·718	·724	19·669		27·78	66. 5. 6·65	,,	,,		2. 13·06	104. 38. 41·51
	22	α Lyræ R.	K	2·141	·502	·106	·102	·302	·312	22·972	1	39·66	12. 48. 41·47	,,	,,		13·50	51. 20. 16·77
	23	α Lyræ	K	0·745	·108	·716	·716	·901	·890	20·651	7	3·86	12. 48. 42·73	,,	,,			51. 20. 18·03
	24	☽ N. L.	K	4·422	·768	·398	·401	·532	·541	23·875	1	24·66						
	25	☽ N. L.	K	,,	,,	,,	,,	,,	,,	23·962	2	27·28						
	26	☽ N. L.	K	,,	,,	,,	,,	,,	,,	23·910	3	25·72	70. 24. 4·75	29·82	37·6		2. 45·49	108. 22. 11·71
	27	☽ N. L.	K	,,	,,	,,	,,	,,	,,	23·945	4	26·65						
	28	☽ N. L.	K	,,	,,	,,	,,	,,	,,	23·917	7	25·09						
	29	ϵ Sagittarii	K	3·082	·454	·104	·070	·236	·224	20·742		31·10	73. 21. 9·97	29·82	37·7		3. 16·30	111. 55. 48·07
	30	π Sagittarii	K	1·236	·619	·246	·236	·391	·381	20·645		34·97	72. 39. 13·84	,,	,,		3. 8·10	111. 13. 43·74
	31	δ Draconis R.	K	3·901	·238	·855	·852	·025	·044	20·142	2	2·40	−15. 56. 41·27	,,	,,		16·98	22. 34. 23·55
	32	δ Draconis	K	3·812	·139	·768	·745	·954	·968	23·662	5	41·08	−15. 56. 40·05	,,	,,			22. 34. 24·77
	33	Wire (Nadir Obs.) R.	K	1·782	·168	·750	·764	·941	·959	21·081	7	21·55	. . .					. . . .
	34	Venus, center	C	3·320	·646	·265	·243	·416	·391	21·180	7	55·25	42. 26. 34·12	29·88	45·9	47·0	53·50	80. 58. 44·90
May 22	35	Wire (Nadir Obs.) R.	C	1·814	·172	·788	·790	·979	·957	21·019		21·10	. . .					. . . .
	36	Brad. 1731 (1st Star)	C	1·879	·253	·854	·840	·060	·045	22·115		58·22	−32. 39. 22·91	29·98	37·4		38·31	5. 51. 20·58
	37	Brad. 1731 (2nd Star)	C	,,	,,	,,	,,	,,	,,	22·728		16·36	−32. 39. 4·77	,,	,,		38·30	5. 51. 38·73
	38	Piazzi XII. 283	C	0·431	·801	·380	·386	·546	·534	22·895		49·83	33. 54. 28·70	,,	,,		40·17	72. 26. 30·67
	39	Polaris S.P.	C	2·622	·014	·618	·621	·805	·784	19·864		38·70	−39. 54. 42·43	,,	,,		49·98	− 1. 24. 10·61
	40	66 Virginis	C	2·328	·736	·310	·314	·480	·430	20·666		41·85	55. 55. 20·72	,,	,,		1. 28·17	94. 28. 10·69
	41	Groombridge 2007	C	3·830	·206	·797	·784	·007	·977	21·150		28·99	−33. 57. 52·14	,,	37·2		40·28	4. 32. 49·38

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
7, 8	− 0·01	0·92	8·40					1	− 4·12	11	+ 2·30	19	+ 2·24	37	+ 11·17
24, &c.	− 0·30	50. 45·25	14. 44·92					2	− 4·44	12	+ 1·30	20	+ 9·38	38	− 2·62
34	− 0·25	4·52						3	− 1·14	13	+ 1·89	21	+ 8·82	39	− 11·36
								4	− 1·45	14	+ 1·60	22, 23	− 0·09	40	− 7·65
								5	+ 8·73	15	+ 1·57	29	+ 11·89	41	+ 10·90
								6	+ 2·61	16	+ 1·54	30	+ 11·91		
								9	+ 3·27	17	+ 1·87	31, 32	− 3·88		
								10	+ 1·05	18	+ 2·10	36	+ 11·17		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·628; from May 21 + 0·″342.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 7′. 38″·87.

13. Of the 10th magnitude.

34. Extremely faint; cloudy.

41. Faint; cloudy.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
May 27	1	Groombridge 2201 .	C	3·530	·820	·441	·436	·620	·637	22·572		48·97	12. 42. 28·98	29·67	50·1		13·00	51. 14. 3·78
	2	Saturn N. L.	C	1·779	·106	·756	·718	·897	·916	22·186	5	51·32	66. 45. 31·33	,,	,,		2. 13·37	105. 19. 13·98
	3	Saturn S. L.	C	,,	,,	,,	,,	,,	,,	22·784	6	8·52	66. 45. 48·53	,,	,,		2. 13·40	105. 19. 14·41
	4	Piazzi XV. 54	C	1·160	·480	·105	·074	·264	·275	23·043		38·01	63. 20. 18·02	,,	,,		1. 54·27	101. 53. 34·09
	5	Groombridge 2253 .	C	3·990	·268	·890	·873	·090	·090	20·356		11·21	7. 51. 51·22	,,	,,		7·96	46. 23. 20·98
	6	χ Lupi	C	4·726	·050	·715	·676	·884	·880	20·310		58·16	84. 32. 38·17	29·68	50·0	52·0	9. 3·50	123. 13. 3·47
	7	(T) Coronæ	C	1·250	·544	·179	·170	·356	·351	22·586		30·15	25. 10. 10·16	,,	,,		27·10	63. 41. 59·06
	8	43 Serpentis	C	3·842	·160	·796	·757	·930	·943	19·480		37·28	46. 6. 17·29	,,	,,		59·87	84. 38. 38·96
	9	*q* Herculis	C	1·266	·590	·204	·162	·360	·366	20·846		38·93	33. 54. 18·94	,,	,,		38·75	72. 26. 19·49
	10	12 Herculis	C	3·070	·381	·991	·976	·156	·167	20·359		15·44	43. 15. 55·45	,,	,,		54·23	81. 48. 11·48
	11	υ Coronæ	C	1·521	·820	·474	·436	·635	·636	20·320		40·43	21. 59. 20·44	,,	,,		23·29	60. 31. 5·53
May 28	12	⊙ S. L.	HC	0·238	·501	·162	·111	·282	·318	20·441	2	23·20	30. 18. 3·21	29·76	63·5	59·5	32·88	68. 34. 4·77
	13	⊙ N. L.	HC	3·712	·962	·623	·583	·749	·772	20·151	5	46·17	29. 46. 26·18	,,	,,		32·19	68. 34. 4·52
	14	Wire (Nadir Obs.) R.	HC	1·529	·832	·465	·427	·629	·705	21·649		20·09	....					....
	15	Piazzi XII. 122....	HC	1·891	·127	·843	·769	·962	·018	19·576		39·60	17. 29. 19·61	29·81	61·9	62·0	17·82	56. 0. 59·23
	16	7 Draconis	HC	0·038	·268	·972	·903	·125	·191	20·210		4·82	−16. 2. 15·17	,,	,,		16·26	22. 28. 50·37
	17	31 Cassiopeiæ S.P..	HC	0·260	·543	·258	·181	·381	·448	22·832		38·28	−60. 25. 41·71	,,	60·7		1. 39·53	−21. 55. 59·44
	18	32 Cassiopeiæ S.P..	HC	9·941	·218	·970	·872	·092	·130	22·898	3	20·80	−64. 10. 59·19	29·82	60·7		1. 56·61	−25. 41. 34·06
	19	52 Hydræ	HC	3·359	·614	·345	·242	·413	·477	21·926		19·52	80. 16. 59·53	29·83	59·8	60·7	5. 19·45	118. 53. 40·78
	20	Piazzi XIV. 150 ..	HC	4·660	·918	·659	·571	·730	·808	22·163		46·89	85. 53. 26·90	,,	59·5		11. 9·14	124. 35. 57·84
	21	B. A. C. 4906	HC	1·532	·779	·507	·399	·622	·651	20·024		30·95	13. 39. 10·96	,,	,,		13·81	52. 10. 46·57
	22	B. F. 2051	HC	0·178	·447	·142	·061	·252	·329	20·233		14·52	11. 17. 54·53	,,	58·5		11·38	49. 49. 27·71
	23	Groombridge 2201 .	HC	4·723	·966	·673	·586	·775	·821	20·156		49·63	12. 42. 29·64	,,	,,		12·85	51. 14. 4·29
	24	Saturn S. L.	HC	2·065	·356	·056	·955	·132	·197	20·261	1	12·07	66. 44. 52·08	,,	58·0		2. 11·88	105. 18. 16·45
	25	Saturn N. L.	HC	,,	,,	,,	,,	,,	,,	19·573	2	51·42	66. 44. 31·43	,,	,,		2. 11·84	105. 18. 12·56
	26	Piazzi XV. 54	HC	2·688	·961	·641	·554	·733	·792	19·990		39·77	63. 20. 19·78	,,	,,		1. 53·05	101. 53. 34·63
	27	Groombridge 2253 .	HC	4·196	·424	·140	·030	·250	·300	19·938		10·47	7. 51. 50·48	,,	,,		7·88	46. 23. 20·16
	28	χ Lupi	HC	1·143	·422	·166	·059	·253	·313	18·083		11·66	84. 32. 51·67	29·83	57·9	59·0	8. 56·90	123. 13. 10·37
	29	ξ^2 Lupi (1st Star) .	HC	0·432	·701	·447	·341	·533	·626	21·049	1	56·35	84. 53. 36·36	,,	57·1		9. 27·85	123. 34. 26·01
	30	ξ^2 Lupi (2nd Star) .	HC	,,	,,	,,	,,	,,	,,	20·932		52·20	84. 53. 32·21	,,	,,		9. 27·75	123. 34. 21·76
	31	δ Scorpii	HC	1·592	·890	·599	·509	·672	·741	21·222		11·38	73. 39. 51·39	,,	,,		3. 12·29	112. 14. 25·48
	32	43 Serpentis	HC	3·581	·822	·548	·428	·606	·674	20·089		37·23	46. 6. 17·24	,,	56·7		59·36	84. 38. 38·40
	33	*q* Herculis	HC	1·716	·972	·682	·569	·740	·808	19·911		37·22	33. 54. 17·23	,,	,,		38·41	72. 26. 17·44
	34	χ Scorpii	HC	3·841	·092	·811	·703	·880	·936	19·950	1	50·19	62. 56. 30·20	,,	,,		1. 51·44	101. 29. 43·44
	35	15 Herculis	HC	4·602	·851	·552	·436	·618	·681	20·131	1	42·17	39. 42. 22·18	,,	,,		47·45	78. 14. 31·43
	36	19 Scorpii	HC	2·902	·162	·874	·783	·964	·022	20·492		8·68	75. 15. 48·69	,,	56·3		3. 34·42	113. 50. 44·91
	37	25 Herculis	HC	3·522	·771	·498	·378	·583	·626	20·458		45·36	13. 46. 25·37	,,	,,		14·03	52. 18. 1·20
	38	B. F. 2272	HC	1·210	·461	·202	·084	·272	·313	20·440		23·08	28. 59. 3·09	29·82	56·0		31·70	67. 30. 56·59
	39	B. A. C. 5615	HC	4·722	·973	·668	·578	·803	·838	20·536		1·41	14. 42. 41·42	,,	,,		15·03	53. 14. 18·25
	40	46 Herculis	HC	3·960	·229	·952	·847	·019	·061	20·701		20·33	22. 52. 0·34	,,	55·7		24·15	61. 23. 46·29
	41	22 Ophiuchi	HC	4·527	·818	·517	·418	·581	·647	20·711		55·33	74. 42. 35·34	,,	,,		3. 26·25	113. 17. 23·39

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
2, 3	− 0·01	0·92	8·40					1	+ 4·53	15	+ 1·99	26	− 1·58	34	+ 1·70
12	− 0·10	4·42	15. 48·70					4	− 1·61	16	+ 10·03	27	+ 5·23	35	+ 2·84
13		4·35						5	+ 4·96	17	− 12·50	28	− 1·04	36	+ 1·87
24, 25	− 0·01	0·91	8·40					6	− 0·95	18	− 12·26	29	− 0·48	37	+ 4·22
								7	+ 3·28	19	− 8·08	30	− 0·47	38	+ 3·54
								8	+ 1·91	20	− 7·55	31	+ 0·28	39	+ 3·98
								9	+ 2·79	21	+ 4·64	32	+ 2·04	40	+ 3·77
								10	+ 2·45	22	+ 5·01	33	+ 2·99	41	+ 4·49
								11	+ 3·54	23	+ 4·78				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

6. Extremely faint.

7. Of the 8½ magnitude.

12, 13. Very cloudy. The microscopes were read by W and P.

16. The cross-wires of microscopes C and D fell on the negative side of the micrometer-zeros. The fractional parts of the readings were taken from the micrometer-heads.

18. The readings of the microscope-micrometers have been decreased 1ʳ. The cross-wires of microscopes A, C, and D fell on the negative side of the micrometer-zeros. The fractional parts of the readings were taken from the micrometer-heads, the integer 9 representing − 1.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
May 28	1	57 Herculis	HC	1·810	·074	·773	·691	·881	·919	20·111		50·50	25. 54. 30·51	29·82	55·7		27·82	64. 26. 20·13
	2	Bradley 2162	HC	0·781	·078	·786	·691	·862	·930	19·323		25·32	72. 48. 5·33	,,	55·6		3. 2·84	111. 22. 29·97
	3	Piazzi XVII. 3	HC	4·312	·547	·256	·168	·402	·433	19·424		3·33	15. 21. 43·34	,,	,,		15·74	53. 53. 20·88
May 29	4	⊙ S. L.	E	4·676	·881	·572	·487	·663	·711	22·353	2	49·46	30. 8. 29·47	29·91	71·7	64·0	32·30	68. 24. 30·58
	5	⊙ N. L.	E	3·252	·468	·165	·073	·251	·298	22·042		12·85	29. 36. 52·86	,,	,,		31·62	68. 24. 30·56
	6	54 Cassiopeiæ S.P.	E	3·498	·706	·464	·400	·525	·654	18·428		44·06	−57. 34. 35·93	29·85	59·0	60·5	1. 29·40	− 19. 4. 43·53
	7	Bradley 1856	E	1·013	·206	·906	·831	·017	·122	19·058	5	27·09	− 0. 26. 52·90	,,	58·8		0·44	38. 4. 28·46
	8	θ Boötis	E	3·152	·323	·134	·948	·136	·235	19·565	5	53·31	− 0. 59. 26·68	,,	,,		0·98	37. 31. 54·14
	9	5 Ursæ Minoris	E	4·185	·364	·063	·002	·198	·296	19·644		59·34	−24. 48. 20·65	,,	,,		26·33	13. 42. 34·82
	10	ε Boötis R.	E	4·493	·696	·396	·336	·515	·646	25·771	1	21·54	23. 49. 58·45	29·85	58·4		25·18	62. 21. 45·43
	11	ε Boötis	E	2·146	·337	·076	·974	·102	·222	20·482	5	18·75	23. 49. 58·76	,,	,,			62. 21. 45·74
	12	B. A. C. 4906	E	1·210	·376	·082	·024	·193	·281	20·794		29·99	13. 39. 10·00	,,	,,		13·85	52. 10. 45·65
	13	B. F. 2051	E	0·072	·276	·983	·910	·086	·197	20·497		13·28	11. 17. 53·29	,,	,,		11·39	49. 49. 26·48
	14	Saturn, center	E	0·997	·232	·922	·869	·003	·117	20·270		3·59	66. 43. 43·60	,,	58·1		2. 11·82	105. 17. 16·31
	15	Groombridge 2283 R.	E	1·531	·727	·423	·354	·496	·592	22·112		29·13	−36. 15. 9·14	,,	,,		41·82	2· 15. 30·84
	16	Groombridge 2283	E	0·826	·020	·725	·648	·822	·947	22·918		11·23	−36. 15. 8·76	,,	,,			2. 15. 31·22
	17	Wire (Nadir Obs.) R.	E	2·147	·357	·046	·976	·154	·264	20·484		19·91	....					....
	18	χ Lupi	E	4·165	·343	·112	·037	·192	·286	22·173		14·49	84. 32. 54·50	29·85	57·7	60·5	8. 57·61	123. 13. 13·91
	19	Oeltz. Arg. 15067	E	4·575	·779	·523	·453	·577	·646	22·034		34·87	68. 8. 14·88	,,	,,		2. 21·27	106. 41. 57·95
	20	51 Libræ	E	4·227	·448	·174	·073	·222	·324	20·236	1	21·23	62. 27. 1·24	,,	,,		1. 48·99	101. 0. 12·03
	21	κ Herculis	E	3·562	·753	·448	·374	·516	·613	25·179	1	4·99	34. 3. 45·00	,,	,,		38·59	72. 35. 45·39
	22	φ Herculis	E	1·442	·615	·336	·264	·445	·547	24·689		40·37	6. 11. 20·38	,,	,,		6·19	44. 42. 48·37
	23	B. F. 2244	E	0·412	·604	·313	·250	·411	·483	25·462	1	1·49	30. 0. 41·50	,,	,,		32·97	68. 32. 36·27
	24	25 Herculis	E	3·435	·600	·302	·256	·412	·481	20·755		45·02	13. 46. 25·03	,,	,,		14·00	52. 18. 0·83
	25	α Normæ	E	4·276	·486	·222	·152	·316	·407	20·974		46·36	85. 42. 26·37	29·85	57·2	60·0	10. 50·86	124. 24. 39·03
	26	Lacaille 6950	E	4·491	·712	·453	·378	·526	·647	20·000		31·44	83. 12. 11·45	,,	,,		7. 25·23	121. 50. 58·48
	27	ε Scorpii	E	4·357	·562	·296	·227	·360	·468	18·643		41·57	85. 21. 21·58	,,	,,		10. 11·90	124. 2. 55·28
	28	Lacaille 7047	E	0·296	·516	·258	·176	·339	·434	19·770	5	6·57	83. 37. 46·58	,,	,,		7. 51·32	122. 16. 59·70
	29	Bradley 2153	E	0·192	·406	·107	·048	·184	·299	20·456	6	18·19	76. 17. 58·20	,,	,,		3. 49·94	114. 53. 9·94
	30	k Scorpii	E	1·806	·013	·755	·660	·797	·916	20·134		49·00	85. 14. 29·01	,,	57·3		9. 59·92	123. 55. 50·73
	31	30 Camelopardali S.P.	E	4·041	·239	·972	·914	·056	·171	19·168		38·47	−69. 33. 41·52	29·85	59·6	61·5	2. 31·35	− 31. 4. 51·07
	32	5 Sagittarii	E	3·510	·727	·438	·349	·484	·598	19·698	1	20·83	75. 41. 0·84	,,	58·9		3. 39·25	114. 16. 1·89
	33	7 Sagittarii	E	,,	,,	,,	,,	,,	,,	20·708		49·83	75. 41. 29·84	,,	,,		3. 39·38	114. 16. 31·02
May 30	34	Saturn N. L.	JC	3·579	·780	·554	·386	·572	·679	22·749	5	54·09	66. 42. 34·10	30·02	57·1		2. 12·71	105. 16. 16·05
	35	Saturn S. L.	JC	,,	,,	,,	,,	,,	,,	23·337	6	11·00	66. 42. 51·01	,,	,,		2. 12·74	105. 16. 16·29
	36	μ^1 Boötis	JC	3·144	·296	·073	·926	·127	·219	23·781		57·21	13. 37. 37·22	,,	,,		13·94	52. 9. 12·96
	37	ζ Ursæ Minoris R.	JC	0·072	·273	·044	·903	·084	·178	21·057		30·54	−26. 43. 10·55	30·02	55·6		29·03	11. 47. 42·22
	38	ζ Ursæ Minoris	JC	2·860	·004	·781	·632	·856	·974	22·825	5	11·63	−26. 43. 8·36	,,	,,			11. 47. 44·41
	39	Bradley 2048	JC	2·906	·104	·845	·709	·883	·982	18·012		52·54	42. 29. 32·55	,,	,,		52·79	81. 1. 47·14
	40	c^1 Scorpii	JC	1·133	·337	·098	·970	·139	·246	17·964		3·70	79. 27. 43·71	30·01	55·1		5. 0·40	118. 4. 5·91

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
4		4·39						1	+ 3·74	12	+ 4·88	23	+ 3·60	31	− 5·91
5	− 0·13	4·32	15. 48·60					2	+ 5·21	13	+ 5·26	24	+ 4·50	32	+ 9·13
14		0·91						3	+ 3·65	15, 16	+ 9·76	25	+ 2·61	33	+ 9·32
34, 35	− 0·01	0·91	8·35					6	− 12·43	18	− 1·13	26	+ 3·73	36	+ 5·18
								7	+ 7·38	19	+ 0·40	27	+ 4·23	37, 38	+ 8·47
								8	+ 7·21	20	+ 1·16	28	+ 4·77	39	+ 2·72
								9	+ 10·40	21	+ 3·15	29	+ 4·83	40	+ 0·97
								10, 11	+ 3·01	22	+ 5·23	30	+ 5·63		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·250.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 7′. 40″·01.

4, 5. The microscopes were read by W and H C.
13. The cross-wires of microscopes C and D fell on the negative side of the micrometer-zeros. The fractional parts of the readings were taken from the micrometer-heads.
21. Observed the brighter of two stars.
34, 35. Faint; cloudy.
37. The cross-wires of microscope D fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance. South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
June 6	1	⊙ N. L.	JC	0·560	·740	·506	·401	·545	·629	21·967	2	26·90	28. 34. 6·27	29·71	64·3	61·0	30·53	67. 21. 41·39
	2	Wire (Nadir Obs.) R.	JC	2·696	·903	·667	·544	·705	·823	19·305		20·30	....					....
	3	λ Coronæ	JC	3·366	·456	·302	·184	·364	·457	24·732		39·82	13. 8. 19·19	29·66	54·6		13·33	51. 39. 54·32
	4	Piazzi XV. 239	JC	3·385	·588	·332	·223	·417	·485	21·761		15·03	14. 26. 54·40	,,	,,		14·71	52. 58. 30·91
	5	Piazzi XV. 266	JC	4·441	·662	·404	·286	·470	·552	22·336	5	37·21	14. 28. 16·58	,,	54·4		14·74	52. 59. 53·12
	6	B. F. 2272	JC	0·440	·662	·425	·305	·463	·538	21·986		20·80	28. 59. 0·17	,,	,,		31·63	67. 30. 53·60
	7	46 Herculis	JC	3·652	·860	·626	·529	·661	·749	21·307		18·71	22. 51. 58·08	29·65	54·1		24·09	61. 23. 43·97
June 7	8	Wire (Nadir Obs.) R.	E	2·135	·360	·124	·004	·164	·274	20·437		20·21	....					....
June 8	9	⊙ S. L.	D	0·972	·200	·908	·830	·992	·050	20·488	1	10·04	28. 53. 49·41	30·06	61·0	59·5	31·52	67. 9. 51·21
	10	⊙ N. L.	D	4·209	·419	·128	·059	·199	·260	20·867		38·05	28. 22. 17·42	,,	,,		30·84	67. 9. 53·21
	11	Wire (Nadir Obs.) R.	D	1·620	·863	·561	·496	·654	·758	21·527		20·57	....					....
June 9	12	☽ N. L.	C	2·516	·720	·445	·355	·509	·602	21·067	2	5·93						
	13	☽ N. L.	C	,,	,,	,,	,,	,,	,,	21·141	3	5·20						
	14	☽ N. L.	C	,,	,,	,,	,,	,,	,,	21·209	4	4·32	49. 15. 44·16	30·19	66·1	65·0	1. 5·84	87. 20. 45·78
	15	☽ N. L.	C	,,	,,	,,	,,	,,	,,	21·314	5	4·53						
	16	☽ N. L.	C	,,	,,	,,	,,	,,	,,	21·489	7	3·95						
	17	Polaris	JC	0·571	·756	·515	·411	·589	·688	20·849		55·21	−37. 6. 25·42	30·25	61·9	61·0	43·39	1. 24. 12·99
	18	Venus N. L.	JC	0·272	·505	·218	·114	·260	·366	20·296	1	20·31	35. 2. 59·68	30·26	69·3		39·66	73. 35. 3·34
	19	Venus S. L.	JC	,,	,,	,,	,,	,,	,,	20·671		30·42	35. 3. 9·79	,,	,,		39·67	73. 35. 2·08
	20	η Tauri	JC	3·458	·664	·409	·303	·457	·539	21·417	6	8·14	27. 46. 47·51	,,	,,		29·79	66. 18. 39·10
	21	Aldebaran	JC	0·555	·741	·518	·366	·539	·635	21·334		6·69	35. 13. 46·06	30·27	70·7		39·83	73. 45. 47·69
June 10	22	⊙ N. L.	JC	4·892	·029	·832	·698	·851	·932	19·272	2	32·41	28. 12. 11·78	30·27	72·3	69·5	30·16	66. 59. 46·71
	23	⊙ S. L.	JC	1·568	·699	·496	·377	·541	·629	19·126		2·70	28. 43. 42·07	,,	,,		30·83	66. 59. 43·41
	24	δ Orionis	JC	3·939	·110	·915	·758	·925	·006	20·116	5	58·44	51. 51. 37·81	30·27	72·7		1. 11·44	90. 24. 11·05
	25	α Orionis	JC	2·388	·518	·332	·164	·345	·448	20·329		28·56	44. 5. 7·93	30·26	73·6		54·27	82. 37. 24·00
	26	Mercury, center	JC	3·659	·781	·610	·460	·640	·716	20·533		53·39	26. 11. 32·76	30·26	73·5	70·5	27·59	64. 43. 19·03
	27	Sirius	JC	0·516	·706	·530	·368	·511	·613	21·328		5·51	67. 58. 44·88	,,	73·9		2. 17·56	106. 32. 24·24
	28	Procyon	JC	0·654	·863	·616	·475	·622	·748	21·751		25·77	45. 54. 5·14	,,	75·0		57·65	84. 26. 24·59
	29	η Virginis	JC	4·612	·757	·603	·399	·564	·676	21·972		34·65	51. 23. 14·02	30·25	72·5	71·5	1. 10·23	89. 55. 46·05
	30	Piazzi XII. 122	JC	1·113	·232	·096	·903	·086	·217	21·216	2	38·78	17. 29. 18·15	,,	,,		17·70	56. 0. 57·65
	31	☽ N. L.	JC	3·036	·165	·017	·826	·981	·096	21·013	2	34·04						
	32	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·116	3	34·27						
	33	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·210	4	34·20						
	34	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·291	5	33·74	53. 31. 13·04	30·25	72·1	71·0	1. 15·89	91. 34. 10·24
	35	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·396	6	33·99						
	36	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	21·417	7	31·75						
	37	Polaris S.P.	JC	1·502	·599	·470	·270	·455	·596	22·267		32·57	−39. 54. 48·06	30·25	69·1		47·28	− 1. 24. 13·54

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
1	− 0·06	4·18	15. 46·97	31, &c.	+ 2·41	45. 1·35	15. 20·81	3	+ 6·98	24	− 10·01				
9	− 0·05	4·22	15. 47·30					4	+ 6·79	25	− 10·41				
10		4·15						5	+ 6·75	27	− 14·72				
12, &c.	+ 2·46	42. 59·57	15. 33·55					6	+ 5·56	28	− 12·54				
18, 19	− 0·20	3·55	5·75					7	+ 6·04	29	− 8·21				
22	− 0·05	4·13	15. 47·10					17	− 14·01	30	+ 3·56				
23		4·19						20	− 8·58	37	− 14·06				
26		3·12						21	− 8·90						

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the readings of B and F being greater than those of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

1. Very cloudy. A correction of −0″·53 has been applied to the N.A. semidiameter. The microscopes were read by W and H C.

7. Cloudy.

9, 10. Cloudy. The microscopes were read by W and H C.

19. Computed distance of limb from illuminated edge, 11°. 58′; correction applied, +0″·12.

22, 23. The sun was accidentally allowed to shine on the instrument three or four minutes before the observation; the result has not been used in subsequent sections. The microscopes were read by W and H C.

25. Very tremulous.

31, &c. A correction of +0″·05 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
June 10	1	Saturn S. L.	JC	4·776	·955	·738	·593	·722	·868	21·459		30·03	66. 33. 9·40	30·25	69·1		2. 9·58	105. 6. 31·58
	2	Saturn N. L.	JC	,,	,,	,,	,,	,,	,,	20·896	6	12·41	66. 32. 51·78	,,	,,		2. 9·55	105. 6. 30·53
	3	Piazzi XV. 54	JC	2·527	·701	·476	·318	·453	·604	20·418		39·79	63. 20. 19·16	,,	61·8		1. 53·77	101. 53. 34·73
	4	Ceres	JC	3·788	·981	·757	·583	·736	·883	19·504		31·25	65. 31. 10·62	,,	,,		2. 5·33	104. 4. 33·24
	5	λ Coronæ	JC	4·438	·554	·353	·186	·358	·501	22·596		40·84	13. 8. 20·21	30·25	60·7		13·43	51. 39. 55·44
	6	Piazzi XV. 239	JC	3·696	·821	·603	·456	·644	·770	21·221	5	14·70	14. 26. 54·07	,,	,,		14·82	52. 58. 30·69
	7	Piazzi XV. 266	JC	,,	,,	,,	,,	,,	,,	23·947		35·77	14. 28. 15·14	,,	,,		14·85	52. 59. 51·79
	8	ρ Herculis	JC	2·551	·664	·466	·310	·503	·632	22·338		37·54	6. 11. 16·91	,,	,,		6·24	44. 42. 44·95
	9	Var. (S) Scorpii	JC	0·729	·920	·704	·562	·698	·847	21·521	6	22·75	73. 59. 2·12	30·26	60·3		3. 17·76	112. 33. 41·68
	10	Thalia	JC	1·680	·868	·656	·512	·636	·793	21·626	5	24·57	74. 30. 3·94	,,	,,		3. 24·49	113. 4. 45·72
	11	Lacaille 6950	JC	4·119	·286	·095	·952	·103	·239	20·510		22·76	83. 12. 2·13	,,	59·2	62·5	7. 29·29	121. 50. 53·22
	12	B. A. C. 5615	JC	4·839	·972	·746	·609	·790	·928	20·273		57·74	14. 42. 37·11	,,	,,		15·15	53. 14. 14·06
	13	24 Ophiuchi	JC	3·143	·322	·108	·973	·104	·244	21·138		40·59	74. 21. 19·96	,,	,,		3. 23·00	112. 56. 4·76
	14	Bradley 2162	JC	4·622	·786	·600	·442	·573	·725	21·725	6	27·63	72. 48. 7·00	30·26	59·0		3. 4·25	111. 22. 33·05
	15	ζ Draconis R.	JC	0·834	·976	·767	·608	·779	·956	21·172		18·63	−14. 23. 58·00	,,	,,		14·82	24. 7. 8·98
	16	ζ Draconis	JC	1·887	·993	·801	·637	·828	·986	23·218	6	23·06	−14. 23. 57·57	,,	,,			24. 7. 9·41
	17	70 Herculis R.	JC	0·966	·132	·889	·770	·953	·113	22·953		19·86	26. 50. 0·77	,,	,,		29·20	65. 21. 51·77
	18	70 Herculis	JC	1·006	·143	·941	·794	·959	·092	22·957	7	20·68	26. 50. 0·05	,,	,,			65. 21. 51·05
	19	Piazzi XVII. 109	JC	2·054	·182	·973	·841	·976	·114	23·128		29·91	31. 16. 9·28	,,	,,		35·05	69. 48. 6·13
	20	Wire (Nadir Obs.) R.	JC	1·284	·433	·214	·075	·233	·401	22·260		18·52	....					....
	21	Piazzi XVII. 196	JC	2·306	·416	·244	·096	·255	·400	23·606		1·13	20. 11. 40·50	30·26	57·3		21·31	58. 43. 23·61
	22	84 Herculis	JC	0·836	·981	·774	·624	·790	·922	22·826		7·34	27. 4. 46·71	,,	,,		29·61	65. 36. 38·12
	23	Polaris	E	0·764	·859	·704	·554	·706	·880	20·525		55·24	−37. 6. 25·39	30·26	65·8	65·0	43·06	1. 24. 13·35
	24	Venus N. L.	E	4·020	·109	·924	·776	·883	·041	22·392	1	8·14	34. 42. 47·51	30·27	72·8	68·5	38·91	73. 14. 50·41
	25	Venus S. L.	E	,,	,,	,,	,,	,,	,,	22·883	2	22·29	34. 43. 1·66	,,	,,		38·92	73. 14. 53·29
June 11	26	⊙ S. L.	E	0·841	·964	·752	·636	·769	·908	21·565	1	30·93	28. 39. 10·30	30·27	76·8	70·5	30·46	66. 55. 11·37
	27	⊙ N. L.	E	4·088	·222	·993	·850	·003	·115	21·824	3	56·53	28. 7. 35·90	,,	,,		29·80	66. 55. 10·38
	28	α Orionis	E	2·440	·517	·372	·183	·354	·496	20·202		26·52	44. 5. 5·89	30·26	78·6	73·0	53·75	82. 37. 21·44
	29	Mercury, center	E	4·574	·620	·492	·324	·463	·629	24·482		44·00	26. 9. 23·37	,,	78·7		27·27	64. 41. 9·29
	30	Sirius	E	5·052	·165	·038	·855	·974	·150	22·096		5·18	67. 58. 44·55	,,	78·2		2. 16·40	106. 32. 22·75
	31	Procyon	E	4·655	·732	·603	·401	·517	·708	23·604	1	24·57	45. 54. 3·94	30·26	77·8	76·0	57·34	84. 26. 23·08
	32	Pollux	E	0·628	·698	·570	·413	·518	·721	19·000		0·27	23. 7. 39·64	,,	,,		23·76	61. 39. 25·20
	33	☽ N. L.	E	3·378	·459	·368	·133	·256	·436	19·515	2	9·24						
	34	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·596	3	8·97						
	35	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·677	4	8·66	57. 35. 48·50	30·19	67·4	69·0	1. 28·98	95. 37. 5·23
	36	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·821	5	10·20						
	37	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·952	7	8·57						
	38	51 Cassiopeiæ S.P.	E	2·589	·612	·597	·342	·457	·708	22·232		36·47	−54. 33. 44·16	,,	65·2		1. 19·76	−16. 3. 42·12
	39	94 Virginis	E	3·396	·485	·372	·149	·260	·477	22·978		47·42	59. 42. 26·79	,,	,,		1. 37·05	98. 13. 25·64
	40	ρ Bootis R.	E	3·457	·493	·404	·215	·357	·595	26·375		32·52	20. 30. 48·11	30·19	64·1		21·33	59. 2. 31·24
	41	ρ Bootis	E	4·208	·221	·123	·919	·062	·275	17·948	7	6·69	20. 30. 46·06	,,	,,			59. 2. 29·19

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
1, 2	− 0·01	0·90	8·30					3	− 1·15	13	+ 4·42	28	− 10·31		
4		4·51						5	+ 8·02	14	+ 5·18	30	− 14·52		
10	+ 0·17	4·51						6	+ 7·82	15, 16	+ 8·28	31	− 12·47		
24, 25	− 0·20	3·51	5·70					7	+ 7·79	17, 18	+ 6·94	32	− 7·74		
26	− 0·04	4·19	15. 47·00					8	+ 8·69	19	+ 6·85	38	− 14·13		
27		4·12						9	+ 1·37	21	+ 6·92	39	− 5·21		
29		3·15						11	+ 2·88	22	+ 7·01	40, 41	+ 6·09		
33, &c.	+ 2·27	46. 44·17	15. 10·07					12	+ 7·61	23	− 14·11				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·610.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 7′. 39″·37.

25. Computed distance of limb from illuminated edge, 11°. 37′; correction applied, + 0″·12.

26, 27. The microscopes were read by W and H C.

33, &c. A correction of + 0″·05 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
June 22	1	Piazzi XV. 266 ...	JC	3·724	·946	·662	·593	·748	·829	23·666		32·34	14. 28. 11·94	30·06	54·1		14·95	52. 59. 48·69
	2	19 Ursæ Minoris, R.	JC	0·525	·772	·500	·414	·541	·627	21·469	2	10·98	−24. 43. 50·58	30·05	53·8	57·5	26·68	13. 47. 4·54
	3	19 Ursæ Minoris..	JC	2·178	·372	·103	·036	·208	·309	22·807		31·52	−24. 43. 48·88	,,	,,			13. 47. 6·24
	4	Groombridge 2376..	JC	2·328	·543	·237	·194	·331	·411	19·434		0·27	8. 59. 39·87	,,	53·3		9·18	47. 31. 10·85
	5	51 Herculis	JC	2·749	·996	·701	·660	·774	·853	19·347		25·32	26. 35. 4·92	,,	,,		29·02	65. 6. 55·74
	6	*d* Herculis	JC	4·644	·878	·608	·549	·673	·764	20·135		45·48	17. 42. 25·08	,,	,,		18·52	56. 14. 5·40
	7	*b* Ophiuchi	JC	0·174	·462	·156	·100	·224	·308	20·174		12·79	75. 27. 52·39	30·04	52·4	56·5	3. 40·23	114. 2. 54·42
June 24	8	Wire (Nadir Obs.) R.	P	2·618	·861	·577	·506	·623	·759	19·444		20·06	....					....
	9	Bradley 2162.....	P	0·920	·156	·894	·842	·937	·064	19·129	7	25·00	72. 48. 4·60	30·05	54·3		3. 4·74	111. 22. 31·14
	10	η Ophiuchi.....	P	2·868	·044	·750	·701	·813	·928	18·524		4·40	66. 59. 44·00	,,	,,		2. 15·44	105. 33. 21·24
	11	70 Herculis	P	3·336	·534	·262	·214	·318	·422	17·924		17·39	26. 49. 56·99	,,	,,		29·28	65. 21. 48·07
	12	Groombridge 2435 .	P	4·750	·938	·651	594	·712	·83	18·884	5	11·49	11. 21. 51·09	,,	,,		11·63	49. 53. 24·52
	13	Groombridge 2533 .	P	3·313	·519	·236	·188	·307	·414	20·878		43·74	9. 21. 23·34	30·06	52·0		9·59	47. 52. 54·73
	14	Piazzi XVIII. 100 .	P	2·820	·056	·751	·720	·832	·938	21·430		30·77	27. 41. 10·37	,,	,,		30·52	66. 13. 2·69
	15	☽ N. L.	K	2·407	·667	·351	·298	·396	·500	23·066	4	53·20	51. 51. 33·91	30·16	53·3		1. 14·00	89. 55. 4·30
	16	☽ N. L.	K	,,	,,	,,	,,	,,	,,	22·934	7	55·42						
	17	Polaris	K	0·622	·874	·591	·516	·654	·754	20·732		56·61	−37. 6. 23·79	30·18	56·9		43·72	1. 24. 14·29
	18	Venus N. L.....	C	4·271	·480	·188	·126	·240	·317	19·670	2	6·23	30. 46. 45·83	30·17	62·8		34·02	69. 18. 44·04
	19	Venus S. L.....	C	,,	,,	,,	,,	,,	,,	20·116		18·67	30. 46. 58·27	,,	,,		34·02	69. 18. 45·72
June 25	20	⊙ N. L.....	C	4·764	·968	·708	·635	·742	·838	20·810	2	11·68	27. 47. 51·28	30·20	66·2		29·94	66. 35. 25·03
	21	⊙ S. L.....	C	1·419	·642	·375	·300	·410	·521	20·702		42·59	28. 19. 22·19	,,	,,		30·61	66. 35. 24·36
	22	Procyon	C	1·018	·240	·960	·895	·999	·113	20·898		43·45	45. 54. 3·05	,,	67·9		58·35	84. 26. 23·20
	23	Pollux	C	3·292	·491	·204	·174	·275	·392	23·520	5	0·36	23. 7. 39·96	,,	,,		24·17	61. 39. 25·93
	24	Polaris S. P.....	C	2·424	·610	·364	·294	·400	·540	20·270		32·05	−39. 54. 48·35	30·28	61·0		48·10	−1. 24. 14·65
	25	Spica	C	2·395	·609	·360	·264	·358	·500	19·850		16·62	61. 54. 56·22	,,	,,		1. 47·39	100. 28. 5·41
	26	Saturn N. L.....	C	0·885	·130	·866	·780	·886	·010	19·920	5	46·91	66. 23. 26·51	30·33	56·0	59·5	2. 12·39	104. 57. 8·01
	27	Saturn S. L.	C	,,	,,	,,	,,	,,	,,	20·494	6	3·41	66. 23. 43·01	,,	,,		2. 12·41	104. 57. 8·13
	28	Groombridge 2283 .	C	1·630	·840	·544	·485	·626	·770	21·067		6·77	−36. 15. 13·63	,,	54·8		42·78	2. 15. 25·39
	29	Wire (Nadir Obs.) R.	C	2·090	·319	·025	·954	·085	·214	20·568		19·99	....					....
	30	λ Coronæ	C	0·580	·789	·518	·434	·580	·694	20·184		35·47	13. 8. 15·07	30·34	53·2		13·67	51. 39. 50·54
	31	Piazzi XV. 239....	C	3·981	·194	·901	·840	·983	·096	20·368		9·92	14. 26. 49·52	,,	,,		15·09	52. 58. 26·41
	32	Piazzi XVII. 196 ..	C	3·784	·002	·740	·660	·786	·896	20·297		56·63	20. 11. 36·23	30·35	50·0		21·69	58. 43. 19·72
	33	Oeltz. Arg. 17415..	C	4·368	·566	·312	·234	·340	·442	15·510	5	8·49	29. 54. 48·09	,,	,,		33·92	68. 26. 43·81
	34	*z* Herculis	C	0·140	·374	·086	·016	·179	·294	19·580		51·72	3. 2. 31·32	,,	,,		3·14	41. 33. 56·26
	35	95 Herculis (1st. Star)	C	4·530	·748	·461	·400	·500	·600	19·499	1	18·64	29. 51. 58·24	,,	,,		33·86	68. 23. 53·90
	36	95 Herculis (2d. Star)	C	,,	,,	,,	,,	,,	,,	19·550	2	19·50	29. 51. 59·10	,,	,,		33·86	68. 23. 54·76
	37	Capella.....	JC	0·126	·342	·170	·007	·169	·258	18·963		33·33	5. 37. 12·93	30·48	61·2		5·70	44. 8. 40·43
	38	β Tauri	JC	1·506	·732	·456	·399	·514	·621	19·494		13·01	22. 58. 52·61	,,	,,		24·55	61. 30. 38·96
	39	α Orionis	JC	1·271	·501	·232	·144	·264	·382	22·408		24·26	44. 5. 3·86	30·49	62·9		55·85	82. 37. 21·51
	40	β Aurigæ	JC	0·204	·417	·145	·175	·228	·332	20·278	5	16·39	6. 32. 55·99	,,	,,		6·63	45. 4. 24·42

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
15, 16	− 2·48	44. 39·22	15. 33·88					1	+ 10·74	11	+ 10·30	25	− 7·61	36	+ 10·63
18, 19	− 0·13	3·01	5·40					2, 3	+ 14·20	12	+ 11·33	28	+ 16·15	37	− 11·60
20	+ 0·02	4·07	15. 46·10					4	+ 11·33	13	+ 14·04	30	+ 11·63	38	− 9·89
21		4·14						5	+ 9·60	14	+ 10·37	31	+ 11·42	39	− 8·80
26, 27	0·00	0·89	8·20					6	+ 10·50	17	− 14·81	32	+ 10·97	40	− 10·45
								7	+ 6·44	22	− 11·44	33	+ 10·52		
								9	+ 5·16	23	− 8·30	34	+ 11·37		
								10	+ 6·15	24	− 14·81	35	+ 10·65		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

9. Very faint. 11. Observed in dark field. 12. Faint.

15, 16. Very faint; cloudy. A correction of −0″·07 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

17. Cloudy. 19. Computed distance of limb from illuminated edge, 6′·33′; correction applied, +0″·04. 20, 21. The microscopes were read by K and W.

33. Extremely faint; cloudy. 39, 40. Very faint and diffused.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D of Center
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
June 26	1	⊙ N. L.	JC	2·048	·269	·952	·929	·061	·120	19·687	2	51·65	27. 49. 31·25	30·49	64·2	63·0	30·38	66. 37. 5·36
	2	⊙ S. L.	JC	3·744	·970	·658	·620	·732	·832	19·214		20·79	28. 21. 0·39	,,	,,		31·06	66. 37. 3·11
	3	Procyon	JC	1·268	·490	·212	·129	·243	·366	20·360		22·72	45. 54. 2·32	,,	66·1		59·12	84. 26. 23·24
	4	Pollux	JC	4·621	·819	·537	·493	·590	·702	20·802		1·55	23. 7. 41·15	,,	,,		24·49	61. 39. 27·44
	5	Mercury, center	JC	3·520	·711	·446	·372	·469	·587	21·323		8·25	29. 36. 47·85	,,	66·8		32·77	68. 8. 38·02
	6	γ^1 Virginis	JC	2·156	·346	·089	·994	·101	·225	21·787		57·84	52. 10. 37·44	,,	64·9		1. 13·92	90. 43. 13·16
	7	γ^2 Virginis	JC	,,	,,	,,	,,	,,	,,	21·916	2	2·52	52. 10. 42·12	,,	,,		1. 13·92	90. 43. 17·84
	8	δ Virginis	JC	2·896	·091	·820	·733	·844	·983	19·733	2	44·00	47. 20. 23·60	,,	,,		1. 2·31	85. 52. 47·71
	9	12 Canum Venaticûm	JC	3·694	·844	·563	·512	·633	·770	19·484		23·36	12. 26. 2·96	,,	,,		12·68	50. 57. 37·44
	10	Polaris S.P.	JC	2·428	·619	·343	·286	·411	·548	20·304		33·09	−39. 54. 47·31	,,	63·5		48·19	−1. 24. 13·70
	11	Saturn N. L.	JC	0·502	·734	·469	·374	·496	·635	19·756	2	19·23	66. 22. 58·83	30·51	57·7		2. 12·65	104. 56. 40·59
	12	Saturn S. L.	JC	,,	,,	,,	,,	,,	,,	20·310		34·88	66. 23. 14·48	,,	,,		2. 12·68	104. 56. 39·87
	13	40 Libræ	JC	0·104	·338	·062	·996	·129	·252	21·176	5	36·74	80. 43. 16·34	30·51	56·6	59·4	5. 43·63	119. 20. 21·77
	14	χ Lupi	JC	4·417	·620	·374	·304	·428	·548	21·000		56·12	84. 32. 35·72	,,	55·7		9. 11·67	123. 13. 9·19
	15	Oeltz. Arg. 15028	JC	0·150	·363	·114	·044	·169	·283	21·349	6	43·53	79. 3. 23·13	,,	,,		4. 54·12	117. 39. 39·05
	16	Piazzi XV. 239	JC	3·542	·738	·451	·381	·536	·650	21·276		9·17	14. 26. 48·77	,,	,,		15·10	52. 58. 25·67
	17	Piazzi XVI. 35	JC	3·360	·566	·303	·244	·374	·483	21·253	2	59·28	81. 56. 38·88	30·51	54·4		6. 33·74	120. 34. 34·42
	18	Piazzi XVI. 36	JC	,,	,,	,,	,,	,,	,,	21·889		17·48	81. 56. 57·08	,,	,,		6. 33·97	120. 34. 52·85
	19	A Draconis R.	JC	1·530	·722	·461	·395	·524	·666	21·004		58·60	−17. 34. 38·20	,,	52·9		18·67	20. 56. 24·93
	20	A Draconis	JC	0·826	·017	·755	·693	·851	·988	23·878	6	41·09	−17. 34. 39·31	,,	,,			20. 56. 23·82
	21	B. A. C. 5615	JC	3·203	·400	·102	·044	·196	·313	23·478		53·48	14. 42. 33·08	,,	,,		15·47	53. 14. 10·35
	22	Groombridge 2376	JC	1·546	·738	·447	·394	·529	·662	21·006		58·33	8. 59. 37·93	,,	,,		9·33	47. 31. 9·06
	23	ε Herculis R.	JC	4·749	·964	·669	·608	·770	·903	23·868	2	41·94	20. 20. 38·46	,,	51·6		21·91	58. 52. 22·17
	24	ε Herculis	JC	1·246	·446	·180	·113	·238	·374	23·634	6	58·39	20. 20. 37·99	,,	,,			58. 52. 21·70
	25	Wire (Nadir Obs.) R.	JC	1·503	·726	·422	·366	·495	·638	21·809		20·51	....					....
	26	Groombridge 2435	JC	4·311	·511	·206	·163	·292	·418	19·713		9·98	11. 21. 49·58	,,	50·0		11·92	49. 53. 23·30
	27	Piazzi XVII. 167	JC	3·930	·125	·886	·814	·936	·073	24·571		11·94	83. 28. 51·54	30·52	49·7	53·0	8. 0·21	122. 8. 13·55
	28	68 Ophiuchi	JC	0·636	·864	·590	·511	·624	·763	20·733		55·57	50. 8. 35·17	,,	49·0		1. 11·07	88. 41. 8·04
	29	96 Herculis	JC	4·891	·093	·798	·752	·847	·981	20·308	2	3·69	30. 37. 43·29	,,	,,		35·18	69. 9. 40·27
	30	100 Herculis (1st Star)	JC	0·324	·553	·258	·226	·327	·441	20·590		32·59	25. 23. 12·19	,,	,,		28·20	63. 55. 2·19
	31	100 Herculis (2d Star)	JC	,,	,,	,,	,,	,,	,,	20·121		18·70	25. 22. 58·30	,,	,,		28·19	63. 54. 48·29
	32	β Andromedæ	E	1·020	·225	·956	·920	·044	·144	19·870		54·14	16. 33. 33·74	30·50	52·5	57·0	17·53	55. 5. 13·07
	33	Polaris	E	0·867	·085	·796	·748	·860	·009	20·282		57·16	−37. 6. 23·24	,,	,,		44·58	1. 24. 13·98
	34	β Arietis	E	0·605	·814	·536	·480	·588	·715	21·052		2·16	31. 18. 41·76	,,	55·8		35·62	69. 50. 39·18
	35	☽ N. L.	E	0·461	·654	·379	·307	·444	·561	19·214	1	52·91						
	36	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·132	2	52·37						
	37	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·126	3	54·12	43. 12. 32·79	30·51	57·3		54·82	81. 20. 47·56
	38	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·012	4	52·69						
	39	☽ N. L.	E	,,	,,	,,	,,	,,	,,	19·005	5	54·46						
	40	☽ N. L.	E	,,	,,	,,	,,	,,	,,	18·806	7	52·61						
	41	Venus N. L.	E	3·622	·844	·508	·498	·588	·703	19·678	5	25·91	30. 21. 5·51	30·54	68·6	65·0	33·47	68. 53. 3·23
	42	Venus S. L.	E	,,	,,	,,	,,	,,	,,	20·228	7	41·88	30. 21. 21·48	,,	,,		33·47	68. 53. 8·43

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
1	+ 0·02	4·07	15. 46·00					3	− 11·36	14	− 3·27	23, 24	+ 11·26	33	− 14·81
2		4·14						4	− 8·34	15	− 1·75	26	+ 11·89	34	− 2·73
5		4·40						6	− 6·36	16	+ 11·64	27	+ 6·93		
11, 12	− 0·01	0·89	8·20					7	− 6·36	17	− 0·15	28	+ 10·22		
35, &c.	− 2·40	40. 6·02	16. 4·24					8	− 4·03	18	− 0·15	29	+ 10·84		
41, 42	− 0·12	2·95	5·40					9	+ 7·14	19, 20	+ 14·67	30	+ 10·99		
								10	− 14·81	21	+ 11·82	31	+ 10·99		
								13	− 3·55	22	+ 12·40	32	− 5·47		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = +0″·448; from June 24, +0″·413.
Correction for Telescope-Micrometer = Micrometer Reading × 29″·602
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = −0″·436 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 7′. 39″·60.

1, 2. The microscopes were read by W and H C.
13. The cross-wires of microscope D fell on the negative side of the micrometer-zero; the fractional part of the reading is taken from the micrometer-head.
35, &c. A correction of −0″·07 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.
42. Computed distance of limb from illuminated edge, 5°. 49′; correction applied, +0″·03.

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ZENITH DISTANCES OBSERVED WITH THE TRANSIT-CIRCLE, AND COMPUTATIONS OF NORTH POLAR DISTANCE,

DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
July 16	1	Piazzi XVII. 323 ..	JC	2·221	·374	·204	·338	·155	·411	22·010		1·05	72. 9. 34·02	29·51	55·7		2. 54·12	110. 43. 49·94
	2	101 Herculis	JC	0·476	·607	·452	·549	·353	·616	19·338		39·64	31. 26. 12·61	,,	,,		34·64	69. 58. 9·05
	3	Groombridge 2533 .	JC	1·459	·578	·396	·526	·374	·626	17·606	1	43·60						
	4	Groombridge 2533 .	JC	,,	,,	,,	,,	,,	,,	17·692		43·67	9. 21. 16·71	29·51	55·1		9·35	47. 52. 47·86
	5	Groombridge 2533 .	JC	,,	,,	,,	,,	,.	,,	17·735	7	43·94						
	6	106 Herculis	JC	1·150	·268	·096	·233	·042	·295	21·926	1	52·89						
	7	106 Herculis	JC	,,	,,	,,	,,	,,	,,	21·973		52·08	29. 33. 25·30	,,	,,		32·17.	68. 5. 19·27
	8	106 Herculis	JC	,,	,,	,,	,,	,,	,,	22·020	7	52·03						
	9	Piazzi XVIII. 100 .	JC	3·553	·684	·496	·657	·482	·718	22·255	1	32·98						
	10	Piazzi XVIII. 100 .	JC	,,	,,	,,	,,	,,	,,	22·316		32·62	27. 41. 5·72	,,	,,		29·77	66. 12. 57·29
	11	Piazzi XVIII. 100 .	JC	,,	,,	,,	,,	,,	,,	22·364	7	32·65						
	12	110 Herculis	JC	0·180	·324	·156	·287	·078	·340	22·147		59·33	31. 2. 32·30	,,	,,		34·15	69. 34. 28·25
	13	110 Herculis	JC	,,	,,	,,	,,	,,	,,	22·196	7	59·33						
	14	ν^2 Lyræ	JC	1·964	·086	·897	·066	·880	·137	21·633		31·45	19. 4. 4·60	,,	,,		19·62	57. 35. 46·02
	15	ν^2 Lyræ	JC	,,	,,	,,	,,	,,	,,	21·685	7	31·80						
	16	113 Herculis	JC	2·014	·144	·952	·109	·923	·175	21·608	1	35·50						
	17	113 Herculis	JC	,,	,,	,,	,,	,,	,,	21·666		35·06	28. 59. 8·22	29·51	55·3		31·42	67. 31. 1·44
	18	113 Herculis	JC	,,	,,	,,	,,	,,	,,	21·718	7	35·20						
	19	Bradley 2388.....	JC	1·688	·824	·646	·784	·615	·873	22·151		32·91	18. 44. 5·88	,,	,,		19·24	57. 15. 46·92
	20	Bradley 2388.....	JC	,,	,,	,,	,,	,,	,,	22·193	7	32·91						
	21	π Sagittarii	JC	2·279	·436	·262	·398	·211	·474	21·443	1	46·84						
	22	π Sagittarii	JC	,,	,,	,,	,,	,,	,,	21·496		46·98	72. 39. 19·69	29·52	55·0	57·0	2. 59·63	111. 13. 41·12
	23	π Sagittarii	JC	,,	,,	,,	,,	,,	,,	21·547	7	46·33						
	24	ρ^1 Sagittarii	JC	4·691	·852	·660	·823	·661	·887	21·072		0·92	69. 31. 33·89	,,	,,		2. 30·80	108. 5. 26·49
	25	50 Sagittarii	JC	0·666	·844	·686	·798	·605	·853	21·044		53·05	73. 27. 26·02	,,	,,		3. 8·64	112. 1. 56·44
	26	Wire (Nadir Obs.) R.	JC	3·460	·613	·384	·549	·393	·654	20·577		27·19	....					....
	27	☽ N. L.	JC	0·668	·867	·701	·822	·629	·874	20·279	2	27·06						
	28	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·302	4	28·49						
	29	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·297	5	28·53	69. 12. 0·96	29·52	55·0	57·5	2. 28·27	107. 10. 7·65
	30	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·284	6	28·22						
	31	☽ N. L.....	JC	,,	,,	,,	,,	,,	,,	20·265	7	27·65						
	32	α^2 Capricorni.....	JC	4·196	·356	·125	·287	·144	·362	16·986		7·84	64. 23. 40·81	,,	,,		1. 57·88	102. 57. 0·49
July 17	33	⊙ N. L.....	C	1·462	·602	·429	·537	·366	·644	19·244	3	38·57	29. 57. 11·54	29·65	67·5	64·0	32·04	68. 44. 46·89
	34	Wire (Nadir Obs.) R.	C	3·601	·762	·535	·706	·571	·797	20·290		26·69	....					....
July 18	35	Groombridge 2376 .	E	3·228	·322	·104	·301	·141	·386	20·239		59·34	8. 59. 32·31	29·50	57·1	59·0	8·94	47. 31. 3·05
	36	*d* Herculis	E	1·478	·598	·456	·594	·389	·665	19·389		44·81	17. 42. 17·78	,,	,,		18·04	56. 13. 57·62
	37	Groombridge 2435 .	E	1·060	·164	·965	·144	·946	·251	19·222	5	11·09	11. 21. 44·06	,,	,,		11·35	49. 53. 17·21
	38	Wire (Nadir Obs.) R.	E	3·388	·541	·318	·480	·315	·582	20·681		26·37	....					....

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″
27, &c.	— 0·93	50. 31·00	14. 47·62
33	+ 0·10	4·36	15. 45·87

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″

No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″
1	+ 9·37
2	+ 15·16
3, &c.	+ 21·16
6, &c.	+ 15·47
9, &c.	+ 15·67
12, 13	+ 15·35
14, 15	+ 15·97
16, &c.	+ 15·64
19, 20	+ 15·81
21, &c.	+ 13·84
24	+ 14·73
25	+ 14·74
32	+ 17·16
35	+ 17·59
36	+ 16·51
37	+ 17·52

No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″

No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″

No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the readings of B and F being greater than those of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of $5'$.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

25, 32. Cloudy.

27, &c. Cloudy. The microscopes were read by P.

33. The microscopes were read by P and H C. A correction of $-0'' \cdot 53$ has been applied to the N.A. Semi-diameter.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
July 18	1	☽ N. L.	E	2·894	·044	·818	·025	·815	·081	22·948	1	10·41						
	2	☽ N. L.	E	,,	,,	,,	,,	,,	,,	22·905	2	10·13						
	3	☽ N. L.	E	,,	,,	,,	,,	,,	,,	22·864	3	9·87						
	4	☽ N. L.	E	,,	,,	,,	,,	,,	,,	22·864	4	10·99	64. 35. 42·95	29·49	55·6	58·0	1. 58·67	102. 34. 41·38
	5	☽ N. L.	E	,,	,,	,,	,,	,,	,,	22·738	5	7·70						
	6	☽ N. L.	E	,,	,,	,,	,,	,,	,,	22·797	6	10·75						
July 20	7	Wire (Nadir Obs.)R.	C	0·042	·203	·998	·151	·978	·251	17·946		27·17	....					....
July 21	8	κ Piscium	E	0·402	·500	·378	·464	·264	·579	18·324	1–7	0·08	50. 55. 33·05	29·66	55·3	59·0	1. 10·10	89. 28. 4·95
July 22	9	⊙ S. L.	E	3·334	·437	·237	·371	·191	·474	18·341		1·01	31. 23. 33·98	29·68	70·3	67·5	33·78	69. 39. 38·21
	10	⊙ N. L.	E	1·722	·826	·641	·785	·584	·871	18·548	4	27·92	30. 52. 0·89	,,	,,		33·13	69. 39. 38·14
July 23	11	2 Aquilæ	K	0·522	·636	·534	·598	·396	·696	21·149	1	47·36						
	12	2 Aquilæ	K	,,	,,	,,	,,	,,	,,	21·216		47·78	60. 37. 20·52	29·63	57·7	61·5	1. 40·31	99. 10. 22·63
	13	2 Aquilæ	K	,,	,,	,,	,,	,,	,,	21·272	7	47·51						
	14	Bradley 2412	K	2·488	·568	·397	·547	·366	·668	21·851		9·79	−31. 35. 17·24	,,	,,		34·84	6. 55. 29·72
	15	113 Herculis	K	1·630	·707	·578	·709	·500	·790	22·327		33·32	28. 59. 6·29	,,	,,		31·39	67. 30. 59·48
	16	Bradley 2388	K	2·714	·801	·632	·783	·590	·881	20·238	1	30·75						
	17	Bradley 2388	K	,,	,,	,,	,,	,,	,,	20·314		31·10	18. 44. 4·07	,,	56·6		19·27	57. 15. 45·14
	18	Bradley 2388	K	,,	,,	,,	,,	,,	,,	20·388	7	31·83						
	19	Piazzi XVIII. 318	K	0·849	·949	·826	·938	·719	·027	21·142		5·76	23. 2. 38·73	29·62	56·3		24·17	61. 34. 24·70
	20	B. F. 2591	K	0·880	·960	·810	·949	·736	·021	21·495		17·80	30. 7. 50·77	,,	,,		32·97	68. 39. 45·54
	21	Groombridge 2812	K	4·061	·131	·927	·104	·952	·221	21·590	5	35·90	11. 21. 8·87	,,	,,		11·41	49. 52. 42·08
	22	4 Cygni	K	3·401	·498	·302	·459	·308	·589	20·582		22·49	15. 24. 55·46	,,	56·1		15·68	53. 56. 32·94
	23	σ Draconis	K	1·731	·817	·633	·792	·627	·928	19·525		3·45	−17. 57. 23·58	,,	,,		18·42	20. 33. 39·80
	24	β Aquilæ	K	1·269	·399	·235	·319	·142	·431	20·592	1	14·08						
	25	β Aquilæ	K	,,	,,	,,	,,	,,	,,	20·636		13·45	45. 22. 46·74	,,	,,		57·54	83. 55. 6·08
	26	c Sagittarii	K	1·834	·953	·788	·934	·741	·036	19·976	1	28·00						
	27	c Sagittarii	K	,,	,,	,,	,,	,,	,,	20·029		28·28	79. 28. 0·88	29·62	56·0	60·0	4. 56·04	118. 4. 18·72
	28	c Sagittarii	K	,,	,,	,,	,,	,,	,,	20·079	7	27·46						
	29	Bradley 1147 S.P.	K	1·731	·847	·705	·831	·648	·967	22·085		33·90	−52. 20. 53·13	,,	,,		1. 13·55	−13. 50. 44·88
	30	56 Camelopardali S.P.	K	4·909	·998	·844	·989	·836	·112	22·325		56·21	−67. 42. 30·82	,,	,,		2. 17·72	−29. 13. 26·74
	31	Bradley 1169 S.P.	K	3·772	·868	·739	·868	·712	·986	22·442		51·41	−68. 53. 35·62	,,	,,		2. 26·14	−30. 24. 39·96
	32	23 Vulpeculæ	K	2·078	·158	·981	·129	·921	·225	20·402		53·71	24. 3. 26·68	,,	55·7		25·39	62. 35. 13·87
	33	Groombridge 3804 R.	K	1·782	·915	·717	·851	·716	·999	19·179	1	57·22	12. 22. 29·81	29·62	53·8		12·53	50. 54. 4·14
	34	Groombridge 3804	K	1·901	·990	·819	·969	·778	·062	19·071	6	56·53	12. 22. 29·50	,,	,,			50. 54. 3·83
	35	Jupiter S. L.	K	0·350	·505	·372	·469	·256	·558	19·135	2	28·35	61. 46. 1·32	,,	,,		1. 45·94	100. 18. 44·97
	36	Jupiter N. L.	K	,,	,,	,,	,,	,,	,,	17·812	6	39·86	61. 45. 12·83	,,	,,		1. 45·88	100. 18. 40·82
	37	Wire (Nadir Obs.) R.	K	0·294	·431	·259	·372	·194	·489	17·535		27·49	....					....

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″		″	′ ″	′ ″
1, &c.	− 1·77	49. 19·27	14. 57·23				
9							
10	+ 0·12	4·55	15. 46·80				
35, 36	+ 0·02	4·48					
		1·89	22·20				

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″		″		″		″
8	+ 15·05	22	+ 17·27	33, 34	+ 8·34		
11, &c.	+ 13·72	23	+ 14·71				
14	+ 17·64	24, 25	+ 16·71				
15	+ 17·20	26, &c.	+ 16·65				
16, &c.	+ 17·56	29	− 11·39				
19	+ 17·42	30	− 10·32				
20	+ 17·15	31	− 10·18				
21	+ 17·41	32	+ 16·31				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″, = + 0″·381; from July 22, + 0″·434.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4), for objects above the pole.
Zenith Point Correction, = + 9′. 32″·97.

1. Cloudy.
7. The cross-wires of microscopes C and E fell on the negative side of the micrometer-zeros. The fractional parts of the readings are taken from the micrometer-heads.
8. The readings of the telescope-micrometer at the 1st and 7th were respectively 18r·272 and 18r·376. 9, 10. The microscopes were read by W. and H. C.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Aug. 2	1	Piazzi XVIII. 100 .	E	0·501	·722	·498	·663	·486	·697	18·764	1	27·93						
	2	Piazzi XVIII. 100 .	E	,,	,,	,,	,,	,,	,,	18·836		27·95	27. 41. 1·54	29·99	52·0		30·44	66. 12. 53.78
	3	Piazzi XVIII. 100 .	E	,,	,,	,,	,,	,,	,,	18·897	7	28·42						
	4	Piazzi XVIII. 116 .	E	1·079	·280	·046	·239	·069	·275	18·812	1	4·49						
	5	Piazzi XVIII. 116 .	E	,,	,,	,,	,,	,,	,,	18·854		3·48	27. 56. 37·24	,,	,,		30·78	66. 28. 29·82
	6	Piazzi XVIII. 116 .	E	,,	,,	,,	,,	,,	,,	18·900	7	3·42						
	7	Piazzi XVIII. 160 .	E	1·540	·764	·491	·712	·530	·767	21·066		48·83	13. 13. 22·27	,,	,,		13·64	51. 44. 57·71
	8	110 Herculis	E	0·518	·739	·471	·690	·482	·705	21·291	1	55·09	31. 2. 28·53	,,	,,		34·92	69. 34. 25·25
	9	Bradley 2412.....	E	2·638	·841	·558	·772	·627	·868	21·416		7·65	−31. 35. 18·91	,,	,,		35·68	6. 55. 27·21
	10	ν^2 Lyræ	E	1·697	·906	·612	·854	·685	·900	21·884	5	25·40	19. 3. 58·84	,,	51·3		20·09	57. 35. 40·73
	11	Bradley 2388.....	E	1·540	·762	·497	·709	·532	·766	22·168		27·08	18. 44. 0·52	,,	,,		19·71	57. 15. 42·03
	12	Piazzi XVIII. 318 .	E	1·117	·341	·082	·302	·097	·334	20·407	1	3·01						
	13	Piazzi XVIII. 318 .	E	,,	,,	,,	,,	,,	,,	20·470		2·63	23. 2. 36·13	,,	,,		24·72	61. 34. 22·65
	14	Piazzi XVIII. 318 .	E	,,	,,	,,	,,	,,	,,	20·509	7	2·43						
	15	B. F. 2591.....	E	1·868	·085	·795	.025	·844	·038	19·474	1	14·86						
	16	F. F. 2591.....	E	,,	,,	,,	,,	,,	,,	19·526		14·23	30. 7. 48·01	,,	,,		33·72	68. 39. 43·53
	17	B. F. 2591.....	E	,,	,,	,,	,,	,,	,,	19·586	7	14·63						
	18	Groombridge 2812..	E	0·196	·407	·162	·376	·187	·417	19·519		32·93	11. 21. 6·37	,,	,,		11·67	49. 52. 39·84
	19	Fortuna	E	1·994	·226	·948	·191	·996	·199	17·976	5	29·29	70. 42. 2·73	29·99	49·2	53·0	2. 45·12	109. 16. 3·69
	20	56 Camelopardali S.P.	E	0·498	·711	·526	·704	·526	·763	21·505	1	58·22	−67. 42. 28·34	,,	47·7		2. 21·81	−29. 13. 28·35
	21	Bradley 1160.. S.P.	E	2·477	·704	·472	·685	·494	·736	19·992		10·84	−55. 41. 15·72	,,	,,		1. 25·58	−17. 11. 19·50
	22	Echo.....	E	1·148	·372	·109	·317	·122	·359	18·002	2	39·59	65. 26. 13·03	,,	,,		2. 7·39	103. 59. 37·58
	23	Hygeia.....	E	1·464	·688	·466	·652	·422	·685	20·786	5	33·79	68. 33. 7·23	,,	,,		2. 27·92	107. 6. 52·82
	24	32 Vulpeculæ ...R.	E	2·322	·560	·268	·484	·342	·579	22·926	1	43·01	23. 54. 43·55	29·99	46·8		26·00	62. 26. 31·35
	25	32 Vulpeculæ	E	2·548	·756	·498	·709	·516	·756	21·629	6	8·51	23. 54. 41·95	,,	,,			62. 26. 29·75
	26	77 Draconis .....R.	E	0·574	·792	·549	·746	·547	·770	19·112	3	42·32	−26. 6. 15·76	,,	,,		28·74	12. 24. 37·30
	27	77 Draconis	E	2·729	·939	·653	·868	·748	·987	19·621	5	11·38	−26. 6. 15·18	,,	,,			12. 24. 37·88
	28	Wire (Nadir Obs.) R.	E	3·513	·737	·454	·659	·535	·748	20·397		26·96	....					....
	29	Jupiter N. L.....	E	2·277	·529	·238	·481	·280	·501	19·573	1	44·79	62. 8. 18·23	29·97	45·4	48·5	1. 50·76	100. 41. 51·56
	30	Jupiter S. L.....	E	,,	,,	,,	,,	,,	,,	21·082	2	36·29	62. 9. 9·73	,,	,,		1. 50·83	100. 41. 57·73
	31	43 Ursæ Majoris S.P.	E	1·756	·969	·714	·954	·746	·992	21·067		3·04	−71. 11. 23·52	,,	,,		2. 50·90	−32. 42. 52·62
Aug. 3	32	Wire (Nadir Obs.) R.	C	3·730	·960	·649	·870	·760	·964	19·992		26·14	....					....
Aug. 5	33	⊙ S. L.....	HC	4·458	·640	·392	·552	·428	·614	20·212	3	16·87	34. 40. 50·31	29·97	69·2	65·0	38·75	72. 56. 57·48
	34	⊙ N. L.....	HC	2·664	·852	·577	·770	·618	·821	20·711	5	41·91	34. 9. 15·35	,,	,,		38·00	72. 56. 58·63
	35	Wire (Nadir Obs.) R.	HC	4·159	·341	·048	·258	·155	·378	19·288		26·81	....					....
Aug. 6	36	☽ N. L.	K	0·320	·501	·322	·440	·279	·503	18·645	2	14·00						
	37	☽ N. L.	K	,,	,,	,,	,,	,,	,,	18·681	3	12·58						
	38	☽ N. L.	K	,,	,,	,,	,,	,,	,,	18·734	4	11·72						
	39	☽ N. L.	K	,,	,,	,,	,,	,,	,,	18·801	5	11·30	62. 0. 45·46	29·71	62·1		1. 45·56	100. 0. 6·61
	40	☽ N. L.	K	,,	,,	,,	,,	,,	,,	18·904	6	12·08						
	41	☽ N. L.	K	,,	,,	,,	,,	,,	,,	18·938	7	10·45						

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
19	− 0·02	5·96						1, &c.	+ 19·18	15, &c.	+ 19·24				
22	+ 0·04	4·64						4, &c.	+ 19·18	18	+ 20·21				
23	+ 0·02	4·13						7	+ 20·64	20	− 12·69				
29, 30	+ 0·03	1·93	22·70					8	+ 18·74	21	− 13·80				
33	+ 0·16	4·98	15. 48·40					9	+ 20·52	24, 25	+ 17·78				
34		4·92						10	+ 20·17	26, 27	+ 11·98				
36, &c.	+ 2·03	48. 57·42	15. 11·14					11	+ 20·15	31	− 1·10				
								12, &c.	+ 19·77						

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the readings of B and F being greater than those of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4′·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z.D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

33, 34. Very cloudy. The microscopes were read by K and W.

36, &c. A correction of + 0″·07 has been applied to the geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Aug. 6	1	χ Draconis	K	2·075	·248	·009	·205	·083	·312	19·762	5	35·88	−21. 11. 50·68	29·73	54·8		22·18	17. 19. 8·94
	2	2 Aquilæ	K	1·084	·283	·050	·222	·047	·274	20·014	1	44·87						
	3	2 Aquilæ	K	,,	,,	,,	,,	,,	,,	20·072		44·97	60. 37. 18·03	,,	,,		1. 41·24	99. 10. 21·07
	4	2 Aquilæ	K	,,	,,	,,	,,	,,	,,	20·106	7	43·94						
	5	γ Capricorni	K	0·754	·950	·741	·894	·715	·928	19·314		58·77	68. 41. 32·21	29·74	52·1		2. 26·39	107. 15. 20·40
	6	79 Draconis	K	3·674	·871	·619	·804	·696	·927	20·894		54·32	−21. 35. 32·24	,,	,,		22·77	16. 55. 26·79
	7	Bradley 2884	K	0·854	·044	·790	·982	·834	·061	20·272		37·76	−5. 32. 48·80	29·73	51·7		5·59	32. 58. 27·41
	8	32 Pegasi R.	K	0·550	·792	·551	·716	·602	·831	19·866	2	9·38	23. 48. 17·18	29·72	51·8		25·38	62. 20. 4·36
	9	32 Pegasi	K	2·621	·812	·558	·769	·591	·811	18·992	7	41·25	23. 48. 14·69	,,	,,			62. 20. 1·87
	10	Jupiter S. L.	K	3·288	·494	·232	·429	·262	·507	20·220	2	7·26	62. 19. 40·70	,,	,,		1. 49·26	100. 52. 27·01
	11	Jupiter N. L.	K	,,	,,	,,	,,	,,	,,	18·875	6	17·98	62. 18. 51·42	,,	,,		1. 49·20	100. 52. 23·27
	12	19 Piscis Australis	K	4·708	·890	·654	·860	·732	·943	19·158		57·90	81. 25. 31·34	29·72	51·9	54·5	6. 3·94	120. 2. 57·08
	13	43 Ursæ Majoris S.P.	K	0·644	·857	·668	·837	·639	·903	22·842	7	56·42	−71. 11. 30·14	,,	,,		2. 47·21	−32. 42. 55·55
	14	Bradley 3058 R.	K	2·470	·636	·387	·584	·418	·654	20·395		20·51	−32. 8. 53·95	,,	,,		36·14	6. 21. 51·71
	15	Bradley 3058	K	4·137	·319	·059	·251	·161	·360	21·258	5	34·85	−32. 8. 51·71	,,	,,			6. 21. 53·95
	16	Wire (Nadir Obs.) R.	K	2·972	·195	·902	·107	·974	·180	21·362		26·60	....					....
Aug. 7	17	Wire (Nadir Obs.) R.	C	2·691	·903	·636	·821	·690	·904	21·854		26·32	....					....
Aug. 8	18	⊙ S. L.	E	3·304	·485	·222	·402	·231	·484	21·862	2	3·56	35. 30. 37·00	29·70	66·4	65·0	39·82	73. 46. 44·73
	19	⊙ N. L.	E	1·757	·919	·661	·848	·638	·890	21·928		27·61	34. 59. 1·05	,,	,,		39·05	73. 46. 45·68
	20	☽ N. L.	E	4·357	·486	·316	·448	·294	·564	20·515	2	24·23						
	21	☽ N. L.	E	,,	,,	,,	,,	,,	,,	20·537	3	23·11						
	22	☽ N. L.	E	,,	,,	,,	,,	,,	,,	20·563	4	22·07	67. 40. 55·99	29·73	64·6	63·5	2. 15·68	105. 39. 9·47
	23	☽ N. L.	E	,,	,,	,,	,,	,,	,,	20·625	5	22·23						
	24	☽ N. L.	E	,,	,,	,,	,,	,,	,,	20·686	6	22·28						
	25	☽ N. L.	E	,,	,,	,,	,,	,,	,,	20·722	7	21·40						
	26	Wire (Nadir Obs.) R.	E	3·605	·778	·547	·707	·565	·834	20·249		26·15	....					....
Aug. 9	27	η Herculis	JC	3·557	·662	·449	·606	·463	·753	16·053		55·61	12. 17. 29·05	29·90	63·7		12·31	50. 49. 3·16
	28	☽ N. L.	JC	1·903	·058	·864	·007	·806	·112	15·846	2	11·28						
	29	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	15·875	3	10·88						
	30	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	15·903	4	10·37	69. 25. 43·95	29·91	63·0	64·0	2. 29·58	107. 23. 46·58
	31	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	15·962	5	10·88						
	32	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	15·988	6	10·16						
	33	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	16·017	7	9·50						
	34	ν Serpentis	JC	2·959	·122	·886	·044	·858	·141	19·917		32·83	64. 9. 6·27	,,	,,		1. 56·26	102. 42. 24·33
	35	ξ Serpentis	JC	3·816	·976	·767	·922	·768	·037	19·919		27·16	66. 45. 0·53	29·92	61·3		2. 11·41	105. 18. 33·74
	36	ξ Serpentis	JC	,,	,,	,,	,,	,,	,,	19·982	7	27·02						
	37	Wire (Nadir Obs.) R	JC	3·109	·270	·032	·189	·043	·343	21·166		26·56	....					....
	38	π Sagittarii	JC	2·432	·574	·393	·533	·341	·646	21·136	1	45·17						
	39	π Sagittarii	JC	,,	,,	,,	,,	,,	,,	21·183		45·09	72. 39. 18·42	29·95	57·7		3. 1·23	111. 13. 41·45
	40	π Sagittarii	JC	,,	,,	,,	,,	,,	,,	21·241	7	44·69						

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
10, 11	+ 0·03	1·95	22·80					1	+ 22·49	14, 15	+ 3·08				
18	+ 0·16	5·09	15. 48·80					2, &c.	+ 14·43	27	+ 20·35				
19		5·02						5	+ 20·59	34	+ 8·82				
20, &c.	+ 1·28	50. 16·92	14. 52·92					6	+ 10·29	35, 36	+ 9·09				
28, &c.	+ 0·82	50. 36·82	14. 48·07					7	+ 12·12	38, &c.	+ 13·63				
								8, 9	+ 15·24						
								12	+ 22·65						
								13	− 2·04						

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·346; from Aug. 5, + 0″·486.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 9′. 33″·44.

6. The microscope readings have been increased 3′.

18, 19. The microscopes were read by K and W.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance. South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Aug. 13	1	☽ S. L.	K	2·948	·982	·895	·962	·747	·136	21·405	2	19·50						
	2	☽ S. L.	K	,,	,,	,,	,,	,,	,,	21·381	3	19·31						
	3	☽ S. L.	K	,,	,,	,,	,,	,,	,,	21·320	4	17·79						
	4	☽ S. L.	K	,,	,,	,,	,,	,,	,,	21·311	5	17·99	68. 29. 52·77	30·00	65·3		2. 22·37	105. 58. 10·63
	5	☽ S. L.	K	,,	,,	,,	,,	,,	,,	21·352	6	19·85						
	6	☽ S. L.	K	,,	,,	,,	,,	,,	,,	21·319	7	19·10						
	7	τ^2 Capricorni	K	4·294	·306	·239	·289	·129	·492	21·388		42·70	66. 51. 16·55	30·00	64·5		2. 11·57	105. 24. 49·92
	8	θ Capricorni	K	0·240	·272	·250	·258	·032	·431	20·115		50·50	69. 11. 24·35	,,	,,		2. 27·72	107. 45. 13·87
	9	ζ Cygni ... .R.	K	4·526	·544	·472	·520	·408	·769	23·995	2	29·43	21. 46. 56·72	,,	63·3		22·68	60. 18. 41·20
	10	ζ Cygni	K	0·688	·671	·642	·654	·463	·844	20·364	6	24·17	21. 46. 58·02	,,	,,			60. 18. 42·50
	11	Lætitia	K	1·274	·275	·234	·253	·046	·425	18·578		58·83	59. 21. 32·68	29·99	64·0		1. 35·31	97. 54. 24·67
	12	Jupiter S L	K	3·421	·449	·362	·396	·211	·579	19·324	1	38·68	62. 39. 12·53	,,	64·0		1. 49·05	101. 11. 58·41
	13	Jupiter N L	K	,,	,,	,,	,,	,,	,,	17·984	6	49·00	62. 38. 22·85	,,	,,		1. 48·99	101. 11. 54·67
	14	43 Ursæ Majoris S.P.	K	2·964	·953	·910	·970	·742	·166	27·522		53·15	−71. 11. 33·00	,,	,,		2. 44·63	−32. 42. 55·83
	15	Bradley 3058....R.	K	2·151	·111	·036	·094	·872	·297	21·220		22·10	−32. 8. 55·95	29·98	63·3		35·63	6. 21. 50·22
	16	Bradley 3058	K	0·088	·061	·040	·049	·852	·285	19·898	5	32·47	−32. 8. 53·68	,,	,,			6. 21. 52·49
	17	Venus S. L.	JC	1·710	·696	·653	·672	·464	·853	19·502		56·82	32. 47. 30·67	29·98	81·2		35·26	71. 19. 19·97
	18	Venus N. L.	JC	,,	,,	,,	,,	,,	,,	19·238	6	46·15	32. 47. 20·00	,,	,,		35·26	71. 19. 19·08
Aug. 14	19	☉ N. L.	JC	4·828	·825	·716	·769	·604	·982	18·944	2	50·67	36. 45. 24·52	29·98	83·3	76·5	40·71	75. 33. 11·68
	20	☉ S. L.	JC	1·503	·521	·425	·452	·247	·638	19·056	5	27·94	37. 17. 1·79	,,	,,		41·50	75. 33. 9·87
	21	Wire (Nadir Obs.) R.	JC	4·092	·019	·011	·003	·843	·291	19·621		26·86	....					....
Aug. 15	22	Wire (Nadir Obs.) R	C	3·898	·900	·840	·867	·720	·096	19·893		26·65	....					....
Aug. 16	23	Wire (Nadir Obs.) R.	L	3·213	·225	·133	·192	·020	·403	21·100		26·02	....					....
	24	Piazzi XVIII. 318	L	0·888	·902	·813	·901	·686	·061	21·006		0·44	23. 2. 34·29	29·85	55·9	61·0	24·37	61. 34. 20·46
	25	Groombridge 2812	L	3·154	·153	·037	·133	·958	·326	23·032		28·36	11. 21. 2·21	,,	,,		11·51	49. 52. 35·52
	26	Jupiter N. L.	L	4·223	·248	·152	·225	·072	·404	22·734	2	26·03	62. 46. 59·88	29·86	55·8	59·5	1. 51·00	101. 20. 33·80
	27	Jupiter S. L	L	,,	,,	,,	,,	,,	,,	24·285	6	16·72	62. 47. 50·57	,,	,,		1. 51·07	101. 20. 38·36
	28	☽ N. L.	L	2·215	·263	·145	·230	·022	·382	24·418	1	14·53						
	29	☽ N. L.	L	,,	,,	,,	,,	,,	,,	24·381	2	14·87						
	30	☽ N. L.	L	,,	,,	,,	,,	,,	,,	24·322	3	14·42						
	31	☽ N. L.	L	,,	,,	,,	,,	,,	,,	24·256	4	13·72	58. 50. 48·14	,,	55·7		1. 34·58	96. 51. 27·28
	32	☽ N. L.	L	,,	,,	,,	,,	,,	,,	24·225	5	14·19						
	33	☽ N. L.	L	,,	,,	,,	,,	,,	,,	24·182	6	14·22						
	34	☽ N. L.	L	,,	,,	,,	,,	,,	,,	24·135	7	14·09						
Aug. 17	35	Wire (Nadir Obs.) R.	E	3·486	·544	·378	·488	·324	·701	20·592		26·23	....					....
Aug. 18	36	10 Ceti	JC	2·770	·806	·706	·749	·547	·930	20·686		43·80	52. 14. 17·65	30·08	58·0		1. 14·10	90. 46. 53·55
	37	13 Ceti	JC	0·372	·408	·376	·382	·161	·539	19·988		53·64	55. 46. 27·49	,,	,,		1. 24·33	94. 19. 13·62

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
1, &c.	− 1·23	50. 33·63	14. 52·68					7	+ 18·96	37	+ 17·85				
11		5·12						8	+ 19·71						
12, 13	+ 0·03	1·97	23·00					9, 10	+ 19·81						
17, 18	+ 0·17	2·86	4·90					14	− 3·76						
19	+ 0·18	5·25	15. 49·90					15, 16	+ 5·53						
20		5·32						24	+ 22·62						
26, 27	+ 0·03	1·98	23·10					25	+ 23·69						
28, &c.	− 2·24	47. 29·45	15. 12·29					36	+ 17·41						

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading F being greater than that of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

16. The cross-wires of microscope E fell on the negative side of the micrometer-zero; the fractional part of the reading is taken from the micrometer-head.

18. Computed distance of limb from illuminated edge, 5°. 31′; correction applied, −0″·02.

19, 20. The microscopes were read by W and H C.

25. Faint.

26, 27. Very faint; observed through cloud.

28, &c. A correction of +0″·08 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Aug. 18	1	☽ N. L.	JC	3·020	·056	·946	·013	·814	·178	20·890	1	1·37						
	2	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·829	2	1·04						
	3	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·797	3	1·70						
	4	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·740	4	1·51	50. 34. 35·11	30·08	57·8	61·5	1. 9·86	88. 38. 58·44
	5	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·688	5	1·50						
	6	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·617	6	0·82						
	7	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·568	7	0·91						
Aug. 19	8	δ Ursæ Minoris	C	1·068	·131	·996	·102	·909	·294	20·677		1·86	−35. 7. 24·29	29·98	67·5		39·54	3. 23. 17·97
	9	Groombridge 2563	C	3·280	·321	·161	·274	·101	·456	19·766		43·77	9. 4. 17·62	,,	,,		8·98	47. 35. 48·40
	10	W. B. XVIII. 483	C	4·500	·553	·404	·524	·334	·684	20·854	5	36·35	44. 56. 10·20	,,	67·3		56·08	83. 28. 28·08
	11	Cephei 51 S.P.	C	1·750	·814	·711	·804	·594	·954	21·204		2·23	−41. 16. 23·92	29·97	67·6		49·30	−2. 45. 51·42
	12	Wire (Nadir Obs.) R.	C	3·678	·760	·590	·695	·539	·900	20·237		26·38	....					....
Aug. 20	13	☉ S. L.	K	4·659	·727	·651	·647	·487	·820	21·434	2	9·02	39. 11. 42·87	29·89	69·9	69·0	45·48	77. 27. 53·70
	14	☉ N. L.	K	3·553	·612	·452	·542	·362	·718	20·551		27·61	38. 40. 1·46	,,	,,		44·63	77. 27. 53·30
	15	Piazzi XVIII. 79	K	1·038	·106	·014	·109	·889	·261	23·194		27·50	84. 24. 1·35	29·91	59·4	63·0	8. 44·80	123. 4. 7·95
	16	Cephei 51 S.P.	K	0·682	·744	·641	·737	·511	·903	23·119		2·85	−41. 16. 23·30	,,	,,		50·01	−2. 45. 51·51
	17	δ Draconis	K	4·555	·620	·442	·580	·428	·782	23·606		16·57	−15. 57. 9·58	29·91	59·0		16·31	22. 33. 55·91
	18	σ Draconis R.	K	0·226	·303	·202	·284	·062	·444	22·076	1	58·88	−17. 57. 32·73	29·91	58·8		18·51	20. 33. 30·56
	19	σ Draconis	K	1·130	·191	·056	·190	·992	·374	20·298		53·15	−17. 57. 33·00	,,	,,			20. 33. 30·29
	20	Bradley 2832	K	4·676	·738	·570	·699	·557	·898	22·474		44·94	−32. 12. 41·21	29·91	57·9		36·02	6. 18. 4·57
	21	Bradley 2851	K	1·984	·051	·892	·035	·801	·166	22·395		56·29	26. 29. 30·14	,,	57·8		28·51	65. 1. 20·45
	22	η Piscis Australis	K	0·467	·556	·453	·545	·318	·684	22·846		41·03	80. 28. 14·88	,,	,,		5. 27·66	119. 5. 4·34
	23	μ Piscis Australis	K	4·600	·676	·566	·682	·508	·860	21·834		19·94	84. 56. 53·79	29·91	57·8	61·0	9. 33·63	123. 37. 49·22
	24	Bradley 2942	K	2·149	·236	·078	·218	·032	·400	22·832		23·69	−21. 10. 2·46	,,	,,		22·15	17. 20. 57·19
	25	Jupiter S. L.	K	3·791	·863	·685	·838	·622	·974	19·208	2	57·88	62. 59. 31·73	,,	,,		1. 51·72	101. 32. 20·17
	26	Jupiter N. L.	K	,,	,,	,,	,,	,,	,,	17·856	6	8·35	62. 58. 42·20	,,	,,		1. 51·66	101. 32. 16·78
	27	56 Pegasi R.	K	0·052	·175	·005	·128	·951	·296	21·654	2	35·69	26. 42. 50·46	29·92	57·2		28·83	65. 14. 41·09
	28	56 Pegasi	K	2·700	·763	·617	·748	·518	·881	18·245	7	15·31	26. 42. 49·16	,,	,,			65. 14. 39·79
	29	Wire (Nadir Obs.) R.	K	1·030	·152	·989	·098	·892	·259	24·885		25·97	....					....
	30	*h* Piscium	HC	0·226	·307	·208	·290	·063	·428	20·643		9·71	23. 11. 43·56	29·91	55·9	60·0	24·60	61. 43. 29·96
	31	φ Piscium	HC	3·542	·644	·455	·589	·394	·738	20·951		42·75	27. 35. 16·60	,,	,,		30·00	66. 7. 8·40
	32	47 Andromedæ	HC	0·275	·389	·229	·333	·145	·500	21·274		34·88	14. 27. 8·73	,,	55·8		14·80	52. 58. 45·33
	33	Piazzi I. 104	HC	3·897	·009	·818	·944	·821	·125	19·929		30·65	14. 55. 4·50	,,	,,		15·30	53. 26. 41·60
	34	ο Piscium	HC	2·151	·257	·068	·195	·982	·347	19·990		44·16	42. 58. 18·01	,,	,,		53·46	81. 30. 33.27
	35	1 Arietis (1st Star)	HC	0·008	·130	·981	·083	·869	·200	20·085	6	35·82	29. 51. 9·67	,,	,,		32·96	68. 23. 4·43
	36	1 Arietis (2nd Star)	HC	,,	,,	,,	,,	,,	,,	20·209	7	39·63	29. 51. 13·48	,,	,,		32·96	68. 23. 8·24
	37	κ Arietis	HC	0·925	·048	·900	·007	·781	·111	20·274		39·88	29. 27. 13·73	,,	55·5		32·45	67. 59. 7·98
	38	ξ^1 Ceti	HC	3·019	·135	·935	·059	·867	·216	20·139		42·76	43. 14. 16·61	,,	,,		53·99	81. 46. 32·40

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
1, &c.	− 2·46	43. 37·12	15. 28·88					8	+ 24·69	20	+ 16·33	32	+ 4·05		
13		5·55						9	+ 24·58	21	+ 20·55	33	+ 3·34		
14	+ 0·19	5·49	15. 50·90					10	+ 18·18	22	+ 20·80	34	+ 11·10		
25, 26	+ 0·03	1·98	23·10					11	− 23·78	23	+ 20·90	35	+ 6·73		
								15	+ 7·46	24	+ 13·81	36	+ 6·73		
								16	− 23·98	27, 28	+ 16·74	37	+ 5·40		
								17	+ 25·26	30	+ 8·53	38	+ 9·43		
								18, 19	+ 23·37	31	+ 8·61				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100ᵐ = + 0″·323 ; from August 19, + 0″·187.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 9′. 33″·85.

1, &c. A correction of − 0″·09 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.
10. Very faint.
13, 14. The microscopes were read by W and H C.
17. The division under microscope B being obliterated by a scratch, the reading was supplied by a comparison with neighbouring observations.
24. The second of two stars observed.
27. The cross-wires of microscope E fell on the negative side of the micrometer-zero ; the fractional part of the reading is taken from the micrometer-head.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Aug. 24	1	42 Capricorni	JC	3·794	·901	·702	·856	·674	·012	19·113		54·95	66. 4. 28·80	30·05	57·6		2. 8·81	104. 37. 59·41
	2	δ Capricorni	JC	4·122	·225	·053	·207	·016	·335	18·829		5·88	68. 9. 39·73	,,	,,		2. 22·41	106. 43. 23·94
	3	η Piscis Australis ..	JC	2·807	·906	·721	·877	·681	·014	18·673		39·74	80. 28. 13·59	30·05	57·8		5. 29·19	119. 5. 4·58
	4	μ Piscis Australis ..	JC	1·628	·730	·582	·734	·509	·883	18·437		20·44	84. 56. 54·29	30·05	57·7	61·0	9. 36·49	123. 37. 52·58
	5	15 Piscis Australis .	JC	2·016	·122	·969	·125	·914	·267	16·754		46·35	84. 31. 20·39	,,	,,		8. 59·11	123. 11. 41·30
	6	Jupiter N. L.	JC	3·223	·330	·121	·276	·074	·411	21·778	1	52·98	63. 10. 26·83	,,	,,		1. 53·15	101. 44. 2.99
	7	Jupiter S. L.	JC	,,	,,	,,	,,	,,	,,	23·164	2	40·22	63. 11. 14·07	,,	,,		1. 53·21	101. 44. 3·89
Aug. 26	8	α Equulei	W	4·768	·893	·664	·821	·632	·962	18·759	6	41·78	46. 45. 15·83	29·96	56·3		1. 1·03	85. 17. 38·66
	9	1 Pegasi.....	W	2·338	·477	·242	·409	·209	·512	19·879	6	51·04	32. 13. 25·09	,,	,,		36·22	70. 45. 23·11
	10	Venus N. L.....	P	1·971	·108	·833	·027	·816	·149	20·368	1	48·99	37. 23. 23·04	30·01	62·7	64·0	43·41	75. 55. 29·86
	11	Venus S. L.	P	,,	,,	,,	,,	,,	,,	20·732		58·57	37. 23. 32·62	,,	,,		43.42	75. 55. 29·87
Aug. 27	12	⊙ S. L.....	P	2·789	·915	·664	·835	·626	·945	20·815	1	54·26	41. 34. 28·31	30·01	62·2	63·0	50·43	79. 50. 42·40
	13	⊙ N. L.....	P	1·116	·261	·003	·184	·967	·300	20·925	5	12·58	41. 2. 46·63	,,	,,		49·50	79. 50. 44·45
	14	Wire (Nadir Obs.) R.	P	3·212	·336	·111	·288	·114	·430	21·023		26·53	....					....
	15	α Coronæ	P	1·694	·806	·592	·779	·547	·880	20·514	5	34·40	24. 18. 8·45	30·04	64·9	65·0	25·58	62. 49. 55·83
	16	α Serpentis	P	0·376	·520	·309	·459	·255	·585	20·479	5	13·14	44. 36. 47·19	,,	,,		55·83	83. 9. 4·82
	17	Groombridge 2444 .	P	1·022	·133	·915	·087	·903	·234	20·963		9·31	10. 7. 43·36	30·06	61·7		10·19	48. 39. 15·35
	18	β Ophiuchi	P	0·870	·025	·789	·944	·739	·066	16·222	5	16·11	46. 49. 50·16	,,	,,		1. 0·73	85. 22. 12·69
	19	ω Draconis.....	P	2·598	·713	·500	·689	·485	·864	20·936	6	46·25	−17. 20. 39·70	,,	,,		17·82	21. 10. 24·28
	20	4 Sagittarii	P	1·282	·433	·200	·385	·159	·484	20·992	5	26·35	75. 13. 0·40	30·06	59·5		3. 33·48	113. 47. 55·68
	21	ξ Cygni	P	2·414	·535	·282	·467	·296	·619	21·095		39·06	8. 4. 13·11	30·11	53·4		8·24	46. 35. 43·15
	22	α Cephei .....R.	P	1·638	·755	·544	·702	·516	·870	20·160	2	20·50	−10. 32. 54·55	,,	,,		10·82	27. 58. 16·43
	23	α Cephei	P	0·845	·942	·732	924	·724	·081	20·179	5	31·35	−10. 32. 54·60	,,	,,			27. 58. 16·38
	24	ε Capricorni.....	P	2·733	·884	·667	·842	·612	·958	20·228	5	29·45	71. 29. 3·50	30·12	52·7		2. 51·99	110. 3. 17·29
	25	42 Capricorni	P	3·018	·188	·957	·117	·919	·229	20·434		54·90	66. 4. 28·95	,,	,,		2. 10·41	104. 38. 1·16
	26	11 Cephei	P	4·942	·057	·837	·028	·888	·210	20·856		8·21	−19. 13. 17·74	,,	,,		20·29	19. 17. 43·77
	27	79 Draconis.....	P	2·328	·449	·252	·410	·266	·586	21·362		45·22	−21. 35. 40·73	,,	,,		23·04	16. 55. 18·03
	28	ι Pegasi .....R.	P	2·618	·756	·509	·703	·533	·856	20·305	1	26·85	26. 45. 59·10	30·11	52·4		29·36	65. 17. 50·26
	29	ι Pegasi	P	4·259	·374	·154	·362	·167	·468	20·895	6	25·33	26. 45. 59·38	,,	,,			65. 17. 50·54
	30	Bradley 2938.....	P	1·959	·084	·877	·061	·879	·212	20·341		47·28	−11. 1. 38·67	,,	,,		11·35	27. 29. 31·78
	31	32 Pegasi.....	P	2·484	·622	·402	·583	·379	·659	19·144		37·24	23. 48. 11·29	,,	,,		25·68	62. 19. 58·77
	32	Jupiter N. L.	P	3·451	·603	·360	·544	·325	·654	19·163	1	38·46	63. 19. 12·51	30·11	52·3		1. 55·35	101. 52. 30·87
	33	Jupiter S. L.	P	,,	,,	,,	,,	,,	,,	20·677	6	27·29	63. 20. 1·34	,,	,,		1. 55·42	101. 52. 33·37
	34	Bradley 3067.....	P	2·635	·780	·542	·741	·565	·893	22·115		29·99	−28. 34. 55·96	30·11	51·9		31·74	9. 55. 54·10
	35	5 Andromedæ	P	3·014	·138	·898	·104	·927	·247	19·678		27·93	2. 54. 1·98	,,	,,		2·95	41. 25. 26·73
	36	12 Andromedæ	P	3·136	·277	·014	·222	·040	·349	22·426		10·37	14. 0. 44·42	,,	,,		14·55	52. 32. 20·77
	37	Bradley 3107.....	P	1·936	·084	·840	·033	·812	·136	19·673		21·11	31. 37. 55·16	,,	,,		35·89	70. 9. 52·83
	38	71 Pegasi.....	P	1·492	·625	·407	·601	·368	·692	18·665		19·35	29. 41. 53·40	,,	51·7		33·24	68. 13. 48·44
	39	Piazzi XXIII. 133.	P	2·819	·997	·737	·952	·713	·037	19·969		26·75	65. 14. 0·80	,,	,,		2. 5·70	103. 47. 28·30
	40	Neptune.....	P	0·792	·958	·721	·887	·684	·015	18·112	5	17·52	47. 10. 51·57	30·12	50·0		1. 3·08	85. 43. 16·23

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
6, 7	+ 0·03	1·99	23·20					1	+ 20·69	16	+ 9·79	25	+ 20·68	36	+ 15·66
10, 11	+ 0·23	3·17	4·80					2	+ 20·69	17	+ 24·31	26	+ 19·27	37	+ 18·14
12	+ 0·20	5·84	15. 52·30					3	+ 20·49	18	+ 16·24	27	+ 18·02	38	+ 17·24
13		5·78						4	+ 20·49	19	+ 26·78	28, 29	+ 21·39	39	+ 21·40
32, 33	+ 0·03	1·99	23·20					5	+ 20·57	20	+ 7·91	30	+ 17·72		
40	+ 0·01	0·22						8	+ 21·98	21	+ 23·59	31	+ 20·55		
								9	+ 22·72	22, 23	+ 21·78	34	+ 10·68		
								15	+ 14·76	24	+ 20·28	35	+ 15·14		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of F being greater than that of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4′·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z.D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

8. Faint.

10. Computed distance of limb from illuminated edge, 5°·22′; correction applied, −0″·02.

12, 13. The microscopes were read by W and HC.

32, 33, 34. Tremulous.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D of Center
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Aug. 27	1	27 Ceti	P	1·912	·085	·830	·037	·819	·129	19·790		24·83	62. 7. 58·88	30·12	50·0		1. 50·23	100. 41. 10·91
	2	29 Ceti	P	3·229	·398	·178	·336	·123	·442	19·868	5	47·96	50. 9. 22·01	,,	,,		1. 10·03	88. 41. 53·84
	3	45 Andromedæ	P	1·192	·362	·100	·308	·115	·422	19·967	5	46·66	14. 27. 20·71	,,	,,		15·09	52. 58. 57·60
	4	87 Piscium	P	0·933	·082	·832	·019	·800	·120	19·902		27·22	36. 2. 1·27	,,	,,		42·55	74. 34. 5·62
Aug. 28	5	Wire (Nadir Obs.) R.	S	3·305	·492	·209	·417	·245	·549	20·808		26·54	....					....
Aug. 29	6	⊙ S. L.	L	4·538	·675	·382	·582	·423	·730	21·873		16·04	42. 16. 50·09	30·17	71·0	67·0	51·07	80. 33. 4·23
	7	⊙ N. L.	L	2·147	·310	·021	·227	·022	·332	23·132	7	30·90	41. 45. 4·95	,,	,,		50·13	80. 33. 3·81
	8	Wire (Nadir Obs.) R.	L	3·116	·274	·003	·208	·022	·362	21·150		25·75	....					....
Aug. 30	9	Wire (Nadir Obs.) R.	JC	4·243	·382	·141	·316	·167	·489	19·180		26·82	....					....
Aug. 31	10	⊙ S. L.	K	4·262	·378	·132	·302	·138	·438	18·839	1	16·95	42. 59. 51·00	29·86	73·7	69·0	51·55	81. 16. 5·14
	11	⊙ N. L.	K	1·975	·110	·857	·027	·810	·155	19·801	6	25·18	42. 27. 59·23	,,	,,		50·60	81. 15. 58·88
	12	Wire (Nadir Obs.) R.	K	1·749	·854	·668	·806	·633	·968	23·616		25·86	....					....
Sept. 1	13	Castor	HC	1·839	·907	·711	·868	·660	·032	19·893	5	20·36	19. 17. 54·41	30·09	65·3	66·0	19·85	57. 49. 36·06
	14	Procyon	HC	2·800	·911	·717	·860	·622	·002	19·989		24·30	45. 53. 58·35	,,	,,		58·43	84. 26. 18·58
	15	Pollux	HC	1·612	·695	·521	·670	·432	·808	19·993		11·37	23. 7. 45·42	,,	66·0		24·18	61. 39. 31·40
Sept. 2	16	Arcturus	HC	4·297	·362	·178	·319	·151	·486	19·819		48·54	31. 35. 22·59	30·10	74·2	71·0	34·26	70. 7. 18·65
	17	β Draconis	HC	2·969	·013	·820	·962	·797	·163	20·071		35·00	— 0. 55. 50·95	30·11	64·0		0·92	37. 35. 29·93
	18	Wire (Nadir Obs.) R.	HC	1·649	·742	·550	·678	·486	·874	23·843		26·37	....					....
	19	μ Aquilæ	HC	2·919	·003	·805	·935	·742	·098	24·039		49·93	44. 21. 23·98	30·11	62·3		55·75	82. 53. 41·53
	20	σ Draconis	HC	1·208	·265	·093	·235	·059	·451	20·121		50·89	—17. 57. 35·06	,,	,,		18·50	20. 33. 28·24
	21	δ Cygni	HC	3·227	·280	·107	·241	·069	·423	20·381		2·45	6. 39. 36·50	,,	,,		6·67	45. 11. 4·97
	22	ι Draconis	HC	1·232	·299	·128	·268	·095	·476	20·661		11·40	—18. 27. 14·55	,,	62·1		19·05	20. 3. 48·20
Sept. 3	23	Wire (Nadir Obs.) R.	P	3·944	·039	·827	·974	·825	·172	19·758		26·37	....					....
	24	σ Draconis	P	1·123	·188	·997	·169	·982	·371	20·244		50·24	—17. 57. 35·71	29·92	63·5		18·34	20. 33. 27·75
	25	χ^1 Cygni	P	1·656	·755	·571	·731	·506	·888	19·782		7·62	18. 2. 41·67	,,	,,		18·43	56. 34. 21·90
	26	17 Vulpeculæ	P	2·828	·925	·730	·886	·664	·037	19·551		10·44	28. 13. 44·49	29·91	63·4		30·36	66. 45. 36·65
	27	α^2 Capricorni	P	2·397	·505	·298	·449	·217	·602	20·197		5·78	64. 23. 39·83	,,	,,		1. 57·42	102. 56. 59·05
	28	Groombridge 3140	P	1·969	·027	·828	·997	·805	·173	21·383	7	18·67	12. 28. 52·72	,,	,,		12·52	51. 0. 27·04
	29	Bradley 2673	P	1·824	·896	·715	·877	·694	·060	21·275		9·09	—20. 36. 16·86	,,	,,		21·27	17. 54. 43·67
	30	49 Cygni	P	1·318	·414	·229	·379	·166	·535	20·439		9·23	19. 37. 43·28	29·91	63·6		20·16	58. 9. 25·24
	31	61^1 Cygni R.	P	2·130	·224	·017	·180	·000	·392	19·191	1	17·40	13. 22. 8·55	,,	,,		13·44	51. 53. 43·79
	32	61^1 Cygni	P	1·510	·559	·362	·528	·333	·710	19·209	5	35·76	13. 22. 9·81	,,	,,			51. 53. 43·05
	33	α Cephei R.	P	2·311	·443	·243	·376	·165	·584	19·027	3	22·97	—10. 32. 57·02	29·91	63·3		10·54	27. 58. 14·24
	34	α Cephei	P	0·587	·645	·482	·647	·437	·842	20·596	7	29·43	—10. 32. 56·52	,,	,,			27. 58. 14·74
	35	ε Capricorni	P	2·698	·797	·632	·775	·541	·924	20·455		34·37	71. 29. 8·42	,,	,,		2. 47·16	110. 3. 17·38

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
6	+ 0·21	5·93	15. 52·80					1	+ 18·69	17	+ 26·04	27	+ 18·53		
7		5·87						2	+ 15·76	19	+ 21·54	28	+ 26·64		
10	+ 0·21	6·01	15. 53·20					3	+ 6·81	20	+ 26·62	29	+ 25·87		
11		5·95						4	+ 12·18	21	+ 27·36	30	+ 25·76		
								13	— 13·23	22	+ 27·38	31, 32	+ 27·46		
								14	— 6·88	24	+ 26·84	33, 34	+ 24·04		
								15	— 12·21	25	+ 26·19	35	+ 19·97		
								16	+ 5·64	26	+ 25·16				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·350; from September 2, + 0″·184.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 9′. 34″·05.

1. The readings of the microscope-micrometers have been decreased 1′.
6, 7, 10, 11. The microscopes were read by W and H C.
15. Very faint.
16. Very tremulous.
28. Observed in dark field.
31, 32. Cloudy.
33, 34. Faint; cloudy; observed in dark field.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Sept. 7	1	Alexandra	E	3·147	·303	·055	·274	·037	·362	21·042	5	22·72	51. 9. 56·77	30·05	55·8		1. 11·56	89. 42. 24·78
	2	Wire (Nadir Obs.) R.	E	3·460	·612	·325	·562	·362	·704	20·551		25·58	....					....
Sept. 8	3	Regulus	JC	4·399	·543	·270	·477	·308	·616	20·737		29·46	38. 51. 3·29	29·88	65·2	64·8	45·33	77. 23. 10·42
Sept. 9	4	⊙ N. L.	JC	0·598	·774	·495	·706	·481	·804	21·214	2	54·92	45. 47. 28·75	29·89	66·4	65·5	57·70	84. 35. 37·32
	5	⊙ S. L.	JC	2·522	·670	·390	·593	·400	·692	21·015		42·96	46. 19. 16·79	,,	,,		58·77	84. 35. 35·57
	6	Polaris S.P.	JC	3·897	·023	·774	·987	·816	·144	20·532		53·10	−39. 54. 33·07	29·85	68·8		46·68	− 1. 23. 57·95
	7	Wire (Nadir Obs.) R.	JC	3·290	·436	·198	·354	·212	·529	20·864		26·50	....					....
Sept. 10	8	⊙ S. L.	D	4·663	·844	·564	·754	·584	·890	21·758	2	23·87	46. 41. 57·70	29·85	63·0	63·5	59·88	84. 58. 17·25
	9	⊙ N. L.	D	2·899	·068	·792	·978	·784	·083	21·834		35·16	46. 10. 8·99	,,	,,		58·78	84. 58. 18·89
	10	Polaris S.P.	D	3·452	·578	·339	·530	·367	·682	21·307		52·29	−39. 54. 33·88	29·87	65·6	64·8	47·01	− 1. 23. 59·09
	11	χ^1 Cygni .(1st Star)	D	1·018	·164	·910	·132	·921	·244	20·772	1	6·58	18. 2. 40·41	29·94	56·1	59·0	18·72	56. 34. 20·93
	12	χ^1 Cygni..(2d Star)	D	,,	,,	,,	,,	,,	,,	20·562	2	58·29	18. 2. 32·12	,,	,,		18·72	56. 34. 12·64
	13	α^2 Capricorni	D	2·603	·772	·506	·704	·500	·810	19·690		3·16	64. 23. 36·99	,,	55·4		1. 59·45	102. 56. 58·24
	14	ρ Capricorni	D	4·260	·420	·192	·388	·210	·493	20·545		15·98	69. 40. 49·81	,,	55·1		2. 34·17	108. 14. 45·78
	15	☽ S. L.	D	2·627	·799	·569	·756	·548	·850	21·402	2	3·41						
	16	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·385	3	3·70						
	17	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·370	4	4·03	67. 4. 37·71	29·95	54·3	58·0	2. 15·53	104. 32. 55·89
	18	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·351	5	4·14						
	19	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·322	6	3·87						
	20	☽ S. L.	D	,,	,,	,,	,,	,,	,,	21·310	7	4·11						
	21	Wire (Nadir Obs.) R.	D	4·582	·744	·477	·673	·523	·850	18·578		27·74	....					....
	22	ι Capricorni	D	3·791	·951	·737	·921	·731	·018	19·569		13·50	68. 49. 47·33	,,	54·0		2. 27·89	107. 23. 37·02
	23	θ Ursæ Majoris S.P.	D	3·147	·297	·073	·299	·073	·386	19·450		30·64	−76. 10. 55·53	,,	53·8		3. 50·36	− 37. 43. 24·09
	24	γ Capricorni	D	0·190	·382	·157	·351	·117	·439	20·300		58·50	68. 41. 32·33	,,	,,		2. 26·92	107. 15. 21·03
	25	16 Pegasi R.	D	3·052	·210	·943	·148	·001	·308	21·701	1	42·59	26. 9. 43·58	,,	53·5		28·38	64. 41. 33·76
	26	16 Pegasi	D	2·099	·228	·982	·195	·990	·293	22·548	7	9·00	26. 9. 42·83	,,	,,			64. 41. 33·01
	27	16 Cephei R.	D	3·857	·997	·749	·948	·786	·075	18·461	2	39·04	−21. 4. 12·87	,,	,,		22·26	17. 26. 46·67
	28	16 Cephei	D	3·847	·968	·722	·935	·802	·108	21·260	5	14·54	−21. 4. 11·63	,,	,,			17. 26. 47·91
	29	Jupiter N. L.	D	1·411	·590	·337	·522	·317	·640	20·295	1	13·49	63. 57. 47·32	29·96	52·9		1. 57·88	102. 31. 27·91
	30	Jupiter S. L.	D	,,	,,	,,	,,	,,	,,	21·693	2	1·18	63. 58. 35·01	,,	,,		1. 57·95	102. 31. 29·87
	31	55 Piscium	D	4·366	·507	·250	·455	·280	·567	19·530	5	44·98	30. 45. 18·81	29·95	52·0	55·0	34·48	69. 17. 15·09
	32	59 Piscium	D	0·835	·988	·723	·947	·728	·037	19·467		6·66	32. 36. 40·49	,,	,,		37·07	71. 8. 39·36
	33	Neptune	D	1·980	·164	·891	·092	·882	·208	20·425		51·35	47. 18. 25·18	,,	51·8		1. 2·77	85. 50. 49·52
Sept. 11	34	Wire (Nadir Obs.) R.	E	3·529	·704	·404	·638	·455	·784	20·394		25·59	....					....
	35	Venus, center	C	0·990	·132	·857	·074	·874	·177	17·706	5	13·98	44. 30. 47·81	29·78	67·7		54·85	83. 3. 0·83
Sept. 12	36	⊙ N. L.	C	4·483	·661	·379	·579	·410	·698	20·049	1	14·67	46. 55. 48·50	29·78	69·0	67·0	59·50	85. 43. 59·54
	37	⊙ S. L.	C	1·119	·269	·008	·202	·004	·308	20·620	5	2·87	47. 27. 36·70	,,	,,		1. 0·62	85. 43. 36·40
	38	Polaris S. P.	C	4·110	·230	·990	·210	·044	·344	20·150		53·09	−39. 54. 33·08	29·79	69·7		46·50	− 1. 23. 57·78

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″
1	0·00	5·35	
4	+ 0·22	6·33	15. 55·40
5		6·39	
8	+ 0·22	6·43	15. 55·70
9		6·38	
15, &c.	− 1·49	50. 21·04	14. 58·04
29, 30	+ 0·02	1·99	22·90
33		0·23	
35	+ 0·28	3·63	
36	+ 0·22	6·46	15. 56·20
37		6·52	

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″		″		″		″
3	− 8·06	23	− 16·76				
6	− 0·86	24	+ 20·14				
10	− 0·51	25, 26	+ 24·67				
11	+ 27·28	27, 28	+ 22·41				
12	+ 27·28	31	+ 15·84				
13	+ 18·46	32	+ 15·67				
14	+ 17·61	38	+ 0·19				
22	+ 19·66						

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the readings of B and F being greater than those of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4r·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

4, 5, 8, 9. The microscopes were read by W and H C.

6. Cloudy.

15, &c. A correction of − 0″·07 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

23, 38. Very cloudy.

35. Observed with a dark glass shade.

36, 37. The microscopes were read by W and P.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Sept. 12	1	Wire (Nadir Obs.) R.	C	3·730	·882	·620	·819	·660	·970	20·066		26·21	....					....
	2	Piazzi XIX. 237...	C	4·075	·200	·980	·184	·026	·324	19·090		14·21	82. 34. 48·04	29·85	60·0	62·0	6. 49·20	121. 12. 59·04
	3	17 Vulpeculæ ...R.	C	4·130	·274	·014	·220	·090	·370	21·550	1	43·37	28. 13. 42·80	,,	59·1		30·56	66. 45. 35·16
	4	17 Vulpeculæ	C	3·276	·421	·181	·371	·190	·484	18·669	5	8·91	28. 13. 42·74	,,	,,			66. 45. 35·10
	5	Lacaille 8386	C	1·381	·546	·315	·507	·310	·634	18·424		6·53	81. 46. 40·36	29·86	59·1		6. 14·37	120. 24. 16·53
	6	κ Cephei.....	C	4·191	·320	·059	·270	·160	·465	19·336		29·27	−25. 49. 56·90	,,	,,		27·57	12. 40. 57·33
	7	θ Aquarii	C	1·840	·000	·754	·969	·736	·056	20·445		42·64	59. 53. 16·47	29·86	57·1		1. 38·27	98. 26. 16·54
	8	Jupiter N. L.	C	1·746	·916	·646	·858	·635	·962	19·740	2	13·68	64. 2. 47·51	,,	,,		1. 56·91	102. 36. 27·14
	9	Jupiter S. L.....	C	,,	,,	,,	,,	,,	,,	21·200	6	1·26	64. 3. 35·09	,,	,,		1. 56·98	102. 36. 28·99
	10	σ Aquarii.....	C	1·394	·564	·315	·504	·301	·616	20·516		18·01	62. 47. 51·84	,,	,,		1. 50·77	101. 21. 6·41
	11	Groombridge 3834 .	C	3·465	·594	·330	·546	·415	·730	22·724		41·62	−24. 3. 44·55	,,	,,		25·53	14. 27. 11·72
	12	☽ S. L.	C	3·360	·546	·278	·478	·286	·596	22·584	2	27·62						
	13	☽ S. L.	C	,,	,,	,,	,,	,,	,,	22·558	3	28·26						
	14	☽ S. L.	C	,,	,,	,,	,,	,,	,,	22·503	4	27·87	60. 46. 1·87	29·87	56·4		1. 41·99	98. 15. 19·39
	15	☽ S. L.	C	,,	,,	,,	,,	,,	,,	22·480	5	28·56						
	16	☽ S. L.	C	,,	,,	,,	,,	,,	,,	22·430	6	28·28						
	17	☽ S. L.	C	,,	,,	,,	,,	,,	,,	22·370	7	27·63						
	18	ι Cephei.....	C	2·106	·264	·000	·205	·046	·356	20·260		53·80	−14. 1. 32·37	,,	,,		14·31	24. 29. 35·12
	19	Bradley 3058....R.	C	3·420	·561	·300	·506	·282	·620	19·080	3	31·42	−32. 9. 5·25	,,	,,		36·00	6. 21. 40·55
	20	Bradley 3058.....	C	4·450	·600	·342	·543	·400	·708	20·380		21·97	−32. 9. 4·20	,,	,,			6. 21. 41·60
	21	φ Aquarii.....	C	1·540	·710	·465	·643	·420	·739	19·930		6·13	58. 12. 39·96	,,	,,		1. 32·16	96. 45. 33·92
Sept. 13	22	Wire (Nadir Obs.) R.	L	3·516	·698	·398	·612	·486	·763	20·423		26·17	....					....
	23	Piazzi XVIII. 160 .	L	1·688	·846	·544	·797	·596	·914	20·657		40·70	13. 13. 14·53	29·95	59·0	62·0	13·43	51. 44. 49·76
	24	Lacaille 7898.....	L	3·324	·465	·208	·435	·246	·561	21·181		39·81	82. 15. 13·64	,,	58·7		6. 36·01	120. 53. 10·45
	25	ε Aquilæ	L	3·296	·456	·154	·363	·177	·479	19·406		34·87	36. 34. 8·70	,,	,,		42·40	75. 6. 12·90
	26	ι Lyræ .....R.	L	2·891	·064	·778	·007	·869	·162	22·644	1	6·41	15. 34. 19·76	,,	,,		15·94	54. 5. 57·50
	27	ι Lyræ	L	1·025	·074	·874	·112	·958	·254	23·713	7	43·11	15. 34. 16·64	,,	,,			54. 5. 54·68
	28	δ Draconis .....R.	L	1·479	·646	·356	·589	·395	·726	19·259	3	41·00	−15. 57. 14·83	,,	,,		16·35	22. 33. 50·62
	29	δ Draconis	L	1·111	·266	·992	·244	·058	·392	20·771	7	11·15	−15. 57. 15·02	,,	,,			22. 33. 50·43
	30	δ Aquilæ	L	4·281	·428	·147	·347	·184	·492	21·024		31·97	48. 36. 5·80	29·95	57·4		1. 4·94	87. 8. 32·54
	31	Bradley 2854.....	L	3·522	·658	·364	·626	·477	·786	22·242		28·82	−19. 13. 57·35	29·95	54·8		20·11	19. 17. 4·34
	32	μ Piscis Australis ..	L	3·592	·752	·505	·742	·572	·868	23·508		18·26	84. 56. 52·09	29·96	54·2	57·5	9. 30·26	123. 37. 53·15
	33	Jupiter S. L.	L	2·473	·643	·335	·584	·363	·682	24·146	6	27·16	64. 6. 0·99	,,	,,		1. 58·29	102. 38. 56·20
	34	Jupiter N. L.....	L	,,	,,	,,	,,	,,	,,	22·732	7	37·52	64. 5. 11·35	,,	,,		1. 58·21	102. 38. 52·28
	35	φ Aquarii	L	4·678	·836	·565	·807	·606	·886	23·032	5	5·66	58. 12. 39·49	29·96	52·8		1. 33·12	96. 45. 34·41
	36	ψ² Aquarii.....	L	3·623	·790	·505	·724	·563	·866	22·014		26·68	61. 21. 0·51	,,	,,		1. 45·54	99. 54. 7·85
	37	☽ S. L.	L	1·934	·115	·835	·030	·832	·112	22·344	1	48·37						
	38	☽ S. L.	L	,,	,,	,,	,,	,,	,,	22·278	2	47·84						
	39	☽ S. L.	L	,,	,,	,,	,,	,,	,,	22·202	3	46·94	56. 49. 21·98	29·96	52·2		1. 28·41	94. 19. 49·11
	40	☽ S. L.	L	,,	,,	,,	,,	,,	,,	22·206	4	48·79						
	41	☽ S. L.	L	1·405	·571	·313	·509	·303	·594	23·053	6	48·99						
	42	☽ S. L.	L	,,	,,	,,	,,	,,	,,	22·976	7	47·98						

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
8, 9	+ 0·03	1·98	22·90					2	+ 11·50	19, 20	+ 16·65	31	+ 25·24		
12, &c.	− 2·18	48. 32·08	15. 14·09					3, 4	+ 26·36	21	+ 21·59	32	+ 18·02		
33, 34	+ 0·02	1·98	22·90					5	+ 13·54	23	+ 27·48	35	+ 21·60		
37, &c.	− 2·38	46. 59·82	15. 23·17					6	+ 28·61	24	+ 8·47	36	+ 21·56		
								7	+ 21·85	25	+ 22·67				
								10	+ 21·67	26, 27	+ 27·87				
								11	+ 20·11	28, 29	+ 30·24				
								18	+ 19·81	30	+ 20·93				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = +0″·184; from September 8, +0″·381.
Correction for Telescope-Micrometer = Micrometer Reading, × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire −4)².
Correction for inclination of wire = −0″·685 × (wire −4), for objects above the pole.
Zenith Point Correction = + 9′·34″·05; from September 8, + 9′·33″·83.

12, &c. A correction of −0″·10 has been applied to the Geocentric N.P.D. of center to reduce to the true Meridian.
24. Very faint.
37, &c. A correction of −0″·09 has been applied to the Geocentric N.P.D. of center to reduce to the true Meridian. The microscopes were read by W.
19, 20, 21. Very faint; cloudy.
28, 29. Image diffused.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle-Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Sept. 18	1	☽ N. L.	JC	4·893	·138	·754	·044	·882	·121	20·686	1	58·18						
	2	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·674	3	59·35						
	3	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·650	4	59·41	36. 36. 33·19	30·14	52·8	55·5	43·17	74. 49. 52·01
	4	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·636	5	59·86						
	5	☽ N. L.	JC	,,	,,	,,	,,	,,	,,	20·612	6	60·02						
	6	Aldebaran	JC	3·660	·920	·538	·803	·644	·871	17·759		3·68	35. 13. 37·51	30·14	52·2		41·15	73. 45. 40·46
Sept. 19	7	ζ Ophiuchi	P	3·151	·397	·054	·325	·121	·386	20·137	5	54·26	61. 44. 28·09	30·09	62·0		1. 45·73	100. 17. 35·62
	8	η Herculis	P	1·221	·449	·085	·362	·177	·464	20·091		54·26	12. 17. 28·09	,,	,,		12·43	50. 49. 2·32
	9	Groombridge 2377	P	0·891	·123	·755	·027	·872	·169	20·091	5	33·73	— 5. 32. 52·44	30·09	61·2		5·55	32. 58. 23·81
	10	κ Ophiuchi	P	1·220	·469	·087	·375	·176	·451	20·102		54·85	41. 52. 28·68	,,	,,		51·20	80. 24. 41·68
	11	η Ophiuchi	P	3·537	·777	·432	·715	·509	·763	19·868	5	8·74	66. 59. 42·57	,,	,,		2. 13·74	105. 33. 18·11
	12	ζ Draconis	P	4·544	·753	·403	·690	·561	·836	19·843		11·20	—14. 24. 14·97	,,	60·6		14·70	24. 6. 52·13
	13	70 Herculis	P	3·649	·877	·537	·810	·661	·895	19·754		12·95	26. 49. 46·78	,,	,,		28·94	65. 21. 37·52
	14	β Draconis	P	2·883	·103	·721	·006	·844	·137	20·071		35·14	— 0. 55. 51·03	,,	60·0		0·86	37. 35. 29·91
	15	ω Draconis	P	2·678	·883	·548	·836	·679	·962	20·697		45·98	—17. 20. 40·19	,,	58·5		17·95	21. 10. 23·66
	16	Jupiter S. L.	P	3·269	·505	·145	·403	·221	·492	20·184	2	4·01	64. 19. 37·84	30·10	55·6		1. 59·70	102. 52. 34·78
	17	Jupiter N. L.	P	,,	,,	,,	,,	,,	,,	18·897	7	15·95	64. 18. 49·78	,,	,,		1. 59·62	102. 52. 31·84
	18	Groombridge 3804	P	0·920	·154	·814	·083	·907	·178	20·151		38·89	12. 22. 12·72	,,	55·2		12·69	50. 53. 47·21
	19	31 Cephei	P	0·599	·842	·514	·785	·637	·900	19·349		53·26	—21. 28. 32·91	,,	,,		22·77	17. 2. 26·12
	20	11 Lacertæ	P	2·370	·615	·237	·519	·366	·628	19·219	6	34·68	7. 53. 8·51	,,	,,		8·02	46. 24. 38·33
	21	87 Pegasi	P	3·070	·333	·962	·242	·058	·314	19·986	5	44·37	33. 59. 18·20	30·09	54·8		39·02	72. 31. 19·02
	22	23 Andromedæ	P	3·872	·094	·711	·020	·870	·117	19·944		32·36	11. 10. 6·19	,,	,,		11·43	49. 41. 39·42
	23	42 Piscium	P	1·924	·194	·780	·096	·887	·162	19·617		21·68	38. 42. 55·51	,,	54·6		46·40	77. 15. 3·71
	24	43 Piscium	P	1·722	·007	·609	·890	·719	·988	19·899	5	19·42	37. 52. 53·25	,,	,,		45·04	76. 25. 0·09
	25	47 Piscium	P	2·252	·514	·144	·443	·216	·472	19·719		45·22	34. 18. 19·05	,,	,,		39·50	72. 50. 20·35
	26	B. F. 34	P	1·369	·633	·284	·575	·388	·659	19·302	5	38·41	18. 37. 12·24	,,	54·4		19·52	57. 8. 53·56
	27	Piazzi 0. 128	P	2·322	·597	·231	·552	·350	·621	19·093	5	30·24	16. 48. 4·07	,,	,,		17·50	55. 19. 43·37
	28	Piazzi 0. 148	P	3·415	·671	·323	·592	·419	·672	18·645		20·90	27. 33. 54·73	,,	,,		30·24	66. 5. 46·77
Sept. 20	29	⊙ S. L.	HC	1·302	·558	·206	·458	·254	·539	20·187	2	4·98	50. 32. 38·81	30·14	57·6	58·0	1. 9·95	88. 49. 5·94
	30	Polaris S.P.	HC	4·269	·488	·160	·420	·304	·538	19·904		57·55	—39. 54. 28·62	30·12	60·5	60·0	47·89	—1. 23. 54·71
	31	α Ophiuchi	HC	1·691	·945	·564	·836	·674	·931	20·140		25·38	38. 47. 59·21	30·12	58·9		46·18	77. 20. 7·19
	32	β Ophiuchi	HC	3·376	·627	·272	·525	·363	·610	20·300		14·75	46. 49. 48·58	,,	58·8		1. 1·21	85. 22. 11·59
	33	κ Cygni	HC	4·303	·514	·151	·419	·321	·566	20·234		8·67	— 1. 39. 17·50	30·14	54·5		1·68	36. 52. 2·62
	34	Wire (Nadir Obs.) R.	HC	2·811	·054	·689	·955	·801	·070	21·632		26·11	....					....
	35	θ Cephei R.	HC	2·912	·181	·832	·084	·931	·196	20·611	1	58·94	—11. 4. 32·77	30·15	52·3		11·42	27. 26. 37·61
	36	θ Cephei	HC	3·432	·641	·308	·586	·447	·707	21·341	5	54·13	—11. 4. 32·04	,,	,,			27. 26. 38·34
	37	32 Vulpeculæ R.	HC	3·374	·633	·287	·520	·448	·679	21·284	1	51·85	23. 54. 34·32	,,	,,		25·85	62. 26. 21·97
	38	32 Vulpeculæ	HC	2·336	·589	·224	·519	·329	·572	21·690		59·46	23. 54. 33·29	,,	,,			62. 26. 20·94
	39	ν Cygni	HC	2·479	·711	·340	·627	·464	·716	19·760		0·45	10. 48. 34·28	,,	,,		11·13	49. 20. 7·21
	40	α Equulei	HC	3·810	·077	·719	·957	·817	·048	20·190		38·14	46. 45. 11·97	30·15	51·2		1. 2·05	85. 17. 35·82

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
1, &c.	— 1·59	34. 47·38	16. 1·30					6	— 0·15	14	+ 26·29	24	+ 19·07	33	+ 30·83
16, 17	+ 0·02	1·96	22·60					7	+ 7·78	15	+ 27·77	25	+ 18·62	35,36	+ 30·75
29	+ 0·22	6·85	15. 57·77					8	+ 21·10	18	+ 25·06	26	+ 16·59	37,38	+ 27·86
								9	+ 23·35	19	+ 22·70	27	+ 15·80	39	+ 29·36
								10	+ 15·41	20	+ 24·47	28	+ 16·88	40	+ 23·88
								11	+ 7·98	21	+ 19·74	30	+ 2·94		
								12	+ 25·66	22	+ 17·22	31	+ 18·45		
								13	+ 20·93	23	+ 19·28	32	+ 16·79		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the readings of B and F being greater than those of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

1, &c. Very cloudy. A correction of −0″·07 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

7. Tremulous.

9, 24, 27. Very faint.

11, 16, 17. Very faint; cloudy.

13. The readings of the microscope-micrometers have been decreased 1ʳ.

29. Very cloudy. The microscopes were read by K and W. A correction of −0″·53 has been applied to the N.A. Semidiameter.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope Micrometer.	Vertical Wire at which observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Sept. 20	1	α Cephei	HC	0·722	·960	·627	·899	·757	·018	20·035		24·21	−10. 33. 1·96	30·15	51·2		10·89	27. 58. 8·95
	2	β^1 Cephei	HC	3·364	·621	·264	·534	·422	·682	20·514	5	23·28	−18. 30. 2·89	,,	,,		19·55	20. 0. 59·36
	3	β^2 Cephei	HC	,,	,,	,,	,,	,,	,,	20·378		18·98	−18. 30. 7·19	,,	,,		19·55	20. 0. 55·06
	4	ε Capricorni	HC	2·489	·744	·415	·678	·486	·756	20·541		29·56	71. 29. 3·39	30·16	50·9		2. 52·86	110. 3. 18·05
	5	Bradley 2841	HC	3·611	·860	·486	·775	·642	·877	20·378		32·69	10. 55. 6·59	,,	,,		11·28	49. 26. 39·60
	6	ν Cephei	HC	1·228	·478	·111	·388	·235	·494	20·721		17·95	− 9. 2. 8·22	,,	50·7		9·31	29. 29. 4·27
	7	η Piscis Australis	HC	1·497	·748	·413	·677	·502	·772	20·728		35·45	80. 28. 9·28	30·16	50·4	53·5	5. 35·57	119. 5. 6·65
	8	Bradley 2904	HC	0·803	·080	·735	·005	·814	·063	21·000		2·18	59. 37. 36·01	,,	,,		1. 39·58	98. 10. 37·39
	9	Jupiter N. L.	HC	4·784	·042	·670	·947	·803	·027	19·614	1	19·56	64. 20. 53·39	30·16	50·4		2. 1·32	102. 54. 37·10
	10	Jupiter S. L.	HC	,,	,,	,,	,,	,,	,,	21·058	2	8·85	64. 21. 42·68	,,	,,		2. 1·39	102. 54. 41·36
	11	β Piscis Australis	HC	0·682	·945	·625	·897	·722	·988	18·505	5	29·06	84. 21. 2·89	,,	50·0		8. 56·46	123. 1. 21·15
	12	Radcliffe 5776	HC	3·083	·341	·977	·233	·111	·371	20·545		6·85	−35. 55. 19·32	,,	,,		42·43	2. 35. 20·05
	13	Lalande(F)1729 S.P.	HC	4·452	·707	·360	·636	·512	·742	20·097		16·38	−40. 9. 9·79	,,	,,		49·41	− 1. 38. 37·40
	14	Bradley 3094	HC	3·009	·278	·895	·195	·051	·302	19·594		29·30	3. 49. 3·13	,,	,,		3·91	42. 20. 28·84
	15	83 Pegasi	HC	1·469	·732	·341	·655	·447	·702	19·680		55·98	30. 27. 29·81	,,	49·4		34·50	68. 59. 26·11
	16	Bradley 3193	HC	0·980	·251	·880	·177	·032	·286	20·173		45·51	− 9. 57. 40·66	,,	49·4		10·31	28. 33. 30·83
	17	23 Andromedæ	HC	4·049	·305	·927	·205	·087	·313	19·590		32·45	11. 10. 6·28	,,	,,		11·59	49. 41. 39·67
	18	σ Andromedæ	HC	3·961	·219	·843	·129	·040	·226	19·982		41·56	15. 25. 15·39	,,	,,		16·18	53. 56. 53·37
	19	Bradley 27	HC	1·880	·162	·770	·064	·881	·129	20·011		33·37	32. 3. 7·20	,,	,,		36·73	70. 35. 5·73
	20	49 Piscium	HC	2·983	·253	·864	·142	·962	·222	20·371		52·94	36. 9. 26·77	30·15	49·0		42·88	74. 41. 31·45
	21	Bradley 41	HC	,,	,,	,,	,,	,,	,,	21·941		47·14	36. 10. 20·97	,,	,,		42·90	74. 42. 25·67
	22	Piazzi 0. 128	HC	1·062	·353	·970	·268	·109	·346	21·238		27·44	16. 48. 1·22	,,	,,		17·73	55. 19. 40·75
	23	Piazzi 0. 148	HC	2·082	·347	·980	·273	·095	·340	20·930		18·09	27. 33. 51·92	,,	,,		3c·64	66. 5. 44·36
	24	i^1 Piscium	HC	2·322	·580	·203	·478	·292	·541	20·303	1	12·52	24. 28. 46·35	,,	,,		26·73	63. 0. 34·88
	25	i^2 Piscium	HC	,,	,,	,,	,,	,,	,,	20·444		14·86	24. 28. 48·69	,,	,,		26·73	63. 0. 37·22
	26	Neptune	HC	3·910	·196	·828	·073	·926	·170	18·710	1	56·12	47. 24. 29·95	,,	,,		1. 3·77	85. 56. 55·29
Sept. 21	27	⊙ S. L.	E	4·032	·301	·939	·212	·047	·279	21·077	2	24·61	50. 55. 58·44	30·12	57·4	57·0	1. 10·90	89. 12. 25·75
	28	⊙ N. L.	E	2·448	·722	·358	·619	·441	·672	20·622		29·31	50. 24. 3·14	,,	,,		1. 9·58	89. 12. 26·19
	29	109 Herculis	E	2·664	·904	·571	·854	·643	·912	21·893		26·29	29. 45. 0·12	30·01	54·6	58·0	33·01	68. 16. 54·93
	30	χ Draconis	E	9·989	·250	·910	·204	·045	·306	23·164		28·37	−21. 11. 57·80	,,	,,		22·41	17. 19. 1·59
	31	Piazzi XVIII. 160	E	0·336	·610	·214	·534	·360	·597	22·953	5	40·20	13. 13. 14·03	30·01	53·6		13·60	51. 44. 49·43
	32	o^1 Draconis	E	1·570	·814	·430	·753	·563	·857	22·387		36·25	− 7. 45. 49·92	,,	,,		7·89	30. 45. 23·99
	33	ι Lyræ R.	E	9·975	·264	·895	·188	·017	·286	19·094	1	8·29	15. 34. 17·88	,,	53·2		16·15	54. 5. 55·83
	34	ι Lyræ	E	2·938	·176	·804	·113	·964	·198	20·179	6	43·28	15. 34. 17·11	,,	,,			54. 5. 55·06
	35	δ Draconis R.	E	1·182	·447	·079	·359	·188	·464	19·731	1	41·61	−15. 57. 15·44	,,	,,		16·56	22. 33. 49·80
	36	δ Draconis	E	2·022	·244	·898	·209	·014	·317	19·082		10·43	−15. 57. 15·74	,,	,,			22. 33. 49·50
	37	Wire (Nadir Obs.) R.	E	3·392	·670	·296	·592	·434	·678	20·550		26·47	....					....
	38	ϑ Cygni	E	2·852	·091	·713	·039	·842	·117	20·784		59·53	6. 39. 33·36	,,	,,		6·76	45. 11. 1·92
	39	ε Draconis	E	0·767	·035	·660	·974	·795	·084	21·165		6·62	−18. 27. 19·55	,,	,,		19·33	20. 3. 42·92
	40	κ Cephei	E	3·687	·935	·572	·875	·731	·982	20·079		27·58	−25. 49. 58·59	,,	,,		28·04	12. 40. 55·17

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″
9, 10	+ 0·02	1·96	22·55
26	+ 0·01	0·23	
27	+ 0·23	6·89	15. 58·50
28		6·83	

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″

No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″
1	+ 29·04
2	+ 27·93
3	+ 27·93
4	+ 18·95
5	+ 27·84
6	+ 27·66
7	+ 17·70
8	+ 21·94

No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″
11	+ 17·87
12	+ 21·54
13	− 18·38
14	+ 21·58
15	+ 20·67
16	+ 16·26
17	+ 17·49
18	+ 17·55

No.	Correction to Mean N.P.D 1867, Jan. 1.
	″
19	+ 18·56
20	+ 18·66
21	+ 18·57
22	+ 16·04
23	+ 17·06
24	+ 16·05
25	+ 16·05
29	+ 23·61

No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″
30	+ 29·51
31	+ 27·97
32	+ 30·65
33, 34	+ 28·55
35, 36	+ 31·32
38	+ 30·47
39	+ 31·39
40	+ 30·66

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100ˢ = + 0ˢ·434.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4). for objects above the pole.
Zenith Point Correction = + 9′. 33″·83.

18. The readings of the microscope-micrometers have been decreased 1ʳ.

30, 33. The cross-wires of microscopes A and C fell on the negative side of the micrometer-zeros; the fractional parts of the readings are taken from the micrometer-heads, the integer 9 signifying − 1.

27, 28. The microscopes were read by W and H C.

39. An unequal double star; the larger observed.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Sept. 28	1	Bradley 3187	JC	4·826	·082	·716	·084	·881	·113	21·345		22·56	−30. 58. 3·37	30·22	53·3		34·99	7. 32. 43·44
	2	Massilia	JC	4·869	·155	·779	·044	·902	·119	20·933		9·85	47. 26. 43·92	30·21	52·4		1. 3·54	85. 59. 4·47
	3	Themis	JC	4·390	·657	·291	·548	·412	·633	18·361	6	9·51	47. 29. 43·58	,,	,,		1. 3·65	86. 2. 6·27
	4	Neptune	JC	,,	,,	,,	,,	,,	,,	18·230		6·42	47. 29. 40·49	,,	,,		1. 3·65	86. 2. 5·71
	5	Lutetia	JC	3·189	·481	·108	·369	·206	·428	18·247	6	52·14	51. 23. 26·21	,,	,,		1. 13·02	89. 55. 54·84
Sept. 29	6	Regulus	C	4·729	·972	·594	·892	·748	·971	20·166		30·94	38. 51. 5·01	30·04	59·4		46·10	77. 23. 12·91
Sept. 30	7	Wire (Nadir Obs.) R.	C	3·622	·874	·521	·774	·654	·896	20·174		26·22	....					....
	8	Bradley 2749	C	3·804	·050	·701	·978	·862	·098	20·720		56·75	−28. 34. 29·18	30·02	56·6		31·34	9. 56. 21·28
	9	ξ Cygni	C	2·512	·736	·376	·652	·499	·750	20·570		30·15	8. 4. 4·22	,,	,,		8·16	46. 35. 34·18
	10	g^2 Cygni	C	0·440	·678	·330	·605	·454	·695	18·400		9·02	5. 30. 43·09	,,	55·4		5·57	44. 2. 10·47
	11	β Cephei	C	3·898	·104	·762	·054	·940	·180	19·364		14·83	−18. 30. 11·10	,,	,,		19·32	20. 0. 51·38
	12	11 Cephei	C	0·178	·402	·060	·352	·202	·469	20·221		56·63	−19. 13. 29·30	,,	,,		20·12	19. 17. 32·38
	13	ν Cephei	C	1·080	·304	·951	·244	·089	·344	20·914		15·08	− 9. 2. 10·85	,,	,,		9·18	29. 29. 1·77
	14	η Piscis Australis	C	1·812	·050	·724	·986	·814	·051	20·303		39·31	80. 28. 13·38	30·03	54·1	56·3	5. 31·55	119. 5. 6·73
	15	Jupiter N. L.	C	2·480	·750	·381	·654	·460	·718	19·934	2	8·10	64. 38. 42·17	,,	,,		2. 1·48	103. 12. 25·57
	16	Jupiter S. L.	C	,,	,,	,,	,,	,,	,,	21·335	6	53·67	64. 39. 27·74	,,	,,		2. 1·55	103. 12. 27·11
	17	Eugenia	C	4·398	·640	·306	·570	·416	·636	18·819	5	25·52	56. 24. 59·59	30·07	51·7		1. 27·47	94. 57. 44·89
	18	43 Piscium	C	1·920	·176	·790	·074	·904	·141	19·500		17·08	37. 52. 51·15	,,	,,		45·27	76. 24. 58·22
	19	28 Andromedæ	C	0·230	·480	·129	·423	·214	·480	20·676		15·44	22. 26. 49·51	,,	,,		24·05	60. 58. 35·36
	20	52 Piscium	C	2·320	·563	·196	·490	·301	·545	20·818		26·91	31. 54. 0·98	,,	,,		36·23	70. 25. 59·01
	21	Massilia	C	2·129	·384	·010	·289	·104	·346	21·257		30·66	47. 39. 4·73	30·08	51·4		1. 3·86	86. 11. 25·57
	22	Themis	C	2·875	·126	·745	·044	·850	·101	19·330	5	9·23	47. 38. 43·30	,,	,,		1. 3·84	86. 11. 6·17
	23	B. F. 92	C	0·307	·540	·185	·481	·270	·520	19·405		35·83	25. 11. 9·90	,,	51·0		27·43	63. 42. 59·13
	24	Neptune	C	0·012	·290	·910	·184	·990	·252	19·576		23·49	47. 30. 57·56	,,	,,		1. 3·61	86. 3. 22·74
	25	Lutetia	C	3·131	·396	·041	·324	·130	·364	18·499	6	56·44	51. 33. 30·51	,,	,,		1. 13·35	90. 5. 59·46
	26	Polaris	C	1·860	·105	·742	·026	·860	·124	20·251		40·84	−37. 6. 45·09	,,	,,		44·11	1. 23. 52·60
	27	Regulus	P	0·337	·630	·236	·525	·341	·592	19·139	5	29·47	38. 51. 3·54	30·37	49·4	53·0	47·56	77. 23. 12·90
	28	γ^1 Leonis	P	1·292	·592	·171	·504	·303	·554	19·922	5	53·97	30. 57. 28·04	,,	,,		35·43	69. 29. 25·27
Oct. 1	29	⊙ N. L.	P	1·325	·632	·253	·521	·333	·538	20·291	2	10·80	54. 17. 44·87	30·41	51·8	56·0	1. 21·74	93. 6. 22·48
	30	⊙ S. L.	P	2·914	·217	·848	·083	·925	·120	20·955		9·16	54. 49. 43·23	,,	,,		1. 23·36	93. 6. 19·82
	31	Wire (Nadir Obs.) R.	P	3·380	·688	·281	·565	·440	·652	20·577		26·49	....					....
	32	ζ Cygni R.	P	1·542	·854	·486	·756	·633	·860	20·625	1	38·37	21. 46. 47·56	30·33	44·9		23·79	60. 18. 33·15
	33	ζ Cygni	P	0·577	·870	·499	·784	·595	·842	19·977	5	13·39	21. 46. 47·46	,,	,,			60. 18. 33·05
	34	α Cephei R.	P	0·577	·887	·509	·778	·626	·870	22·154	3	30·07	−10. 33. 4·14	,,	,,		11·09	27. 58. 6·57
	35	α Cephei	P	4·800	·039	·681	·981	·863	·090	21·442	6	22·42	−10. 33. 3·51	,,	,,			27. 58. 7·20
	36	72 Cygni	P	0·212	·508	·103	·407	·227	·462	20·264		0·42	13. 31. 34·49	,,	44·8		14·33	52. 3. 10·62
	37	Bradley 2833	P	4·103	·392	·037	·301	·166	·370	19·772	6	41·34	61. 5. 15·41	,,	,,		1. 47·45	99. 38. 24·66
	38	η Piscis Australis	P	1·784	·087	·713	·004	·838	·062	20·072	6	30·27	80. 28. 4·34	30·31	45·1		5. 41·04	119. 5. 7·18

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
2		4·79		24		0·23		1	+ 16·82	14	+ 16·50	32, 33	+ 29·30		
3	+ 0·05	2·76		25	+ 0·05	6·20		6	− 9·78	18	+ 20·27	34, 35	+ 31·67		
4		0·23		29	+ 0·23	7·23	16. 1·30	8	+ 31·35	19	+ 19·32	36	+ 30·14		
5	+ 0·05	6·19		30		7·27		9	+ 31·16	20	+ 19·57	37	+ 20·91		
15, 16	+ 0·02	1·93	22·05					10	+ 30·77	23	+ 17·27	38	+ 16·38		
17	+ 0·05	3·97						11	+ 30·65	26	+ 6·79				
21		4·82						12	+ 30·12	27	− 9·90				
22	+ 0·02	2·77						13	+ 30·32	28	− 11·58				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the readings of B and F being greater than those of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of $5'$.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

17. Extremely faint.
22. Seen only by glimpses.
24. The cross-wires of microscopes C and E fell on the negative side of the micrometer-zeros; the fractional parts of the readings were taken from the micrometer-heads.
25. Of the 9th magnitude.
29, 30. Image very bad. The microscopes were read by W and H C.
37. Faint.
38. Very faint; observed in dark field.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle-Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Oct. 1	1	Jupiter N. L.	P	3·326	·658	·242	·541	·364	·580	20·771	1	31·46	64. 40. 5·53	30·31	45·1		2. 5·03	103. 13. 52·44
	2	Jupiter S. L.	P	,,	,,	,,	,,	,,	,,	22·171		17·91	64. 40. 51·98	,,	,,		2. 5·10	103. 13. 54·96
	3	32 Pegasi	P	1·062	·375	·004	·277	·096	·314	21·272		28·78	23. 48. 2·85	30·31	44·9		26·25	62. 19. 50·90
	4	Groombridge 3804	P	1·617	·904	·511	·813	·650	·872	18·799		36·22	12. 22. 10·29	,,	,,		13·05	50. 53. 45·14
	5	ι Cephei	P	1·919	·194	·817	·114	·977	·189	20·322		47·95	−14. 1. 37·98	30·29	44·9		14·86	24. 29. 28·96
	6	Bradley 3193	P	0·893	·185	·797	·088	·964	·179	20·234		42·40	− 9. 57. 43·53	30·27	44·9		10·44	28. 33. 27·83
	7	Bradley 3212	P	3·990	·283	·902	·214	·063	·242	20·545		3·34	23. 10. 37·41	,,	,,		25·44	61. 42. 24·65
	8	Eugenia	P	1·449	·768	·392	·683	·489	·694	17·974	6	56·65	56. 31. 30·72	30·25	45·5		1. 29·48	95. 4. 18·03
	9	28 Andromedæ	P	0·414	·755	·355	·670	·486	·691	20·264		15·69	22. 26. 49·76	,,	,,		24·51	60. 58. 36·07
	10	Massilia	P	3·922	·247	·836	·119	·971	·186	20·144	5	44·22	47. 45. 18·29	,,	,,		1. 5·24	86. 17. 40·50
	11	32 Andromedæ	P	3·055	·391	·980	·287	·122	·352	20·142	6	51·76	12. 44. 25·83	,,	,,		13·41	51. 16. 1·04
	12	Neptune	P	1·084	·417	·003	·292	·106	·362	18·714		1·52	47. 31. 35·59	30·25	45·6		1. 4·70	86. 4. 1·86
	13	Bradley 114	P	0·592	·921	·524	·836	·696	·914	22·394		40·47	−13. 46. 45·46	,,	,,		14·55	24. 44. 21·79
	14	ψ² Piscium	P	0·008	·350	·922	·222	·037	·260	19·400		18·68	31. 25. 52·75	,,	45·5		36·25	69. 57. 50·80
	15	87 Piscium	P	0·539	·853	·424	·730	·542	·774	20·315		21·77	36. 1. 55·84	,,	,,		43·13	74. 34. 0·77
Oct. 2	16	Eugenia	E	1·071	·364	·983	·301	·075	·328	20·894	5	14·17	56. 37. 48·24	29·81	48·8	52·5	1. 27·93	95. 10. 34·80
	17	Massilia	E	0·958	·246	·823	·117	·936	·181	18·963		59·89	47. 51. 33·96	,,	48·4		1. 4·14	86. 23. 55·06
	18	Wire (Nadir Obs.) R.	E	3·450	·749	·328	·648	·500	·736	20·446		26·11	....					....
	19	Neptune	E	1·378	·647	·252	·563	·366	·618	19·403		41·24	47. 32. 15·31	29·81	47·3		1. 3·56	86. 4. 40·44
	20	Polaris	E	1·546	·839	·442	·757	·586	·832	20·726		39·71	−37. 6. 46·22	,,	,,		44·05	1. 23. 51·53
	21	97 Piscium	E	1·777	·040	·614	·945	·736	·988	19·522		8·16	33. 47. 42·23	,,	,,		38·97	72. 19. 43·00
Oct. 3	22	⊙ S. L.	HC	0·332	·668	·278	·566	·370	·538	19·440	2	41·78	55. 36. 15·85	29·83	49·8	51·5	1. 24·50	93. 52. 53·00
	23	⊙ N. L.	HC	2·902	·230	·823	·105	·970	·135	20·122		41·18	55. 4. 15·25	,,	,,		1. 22·84	93. 52. 54·39
	24	Venus, center	HC	3·798	·122	·713	·988	·872	·041	20·825		0·35	55. 0. 34·42	29·83	49·9		1. 22·63	93. 33. 14·61
	25	Polaris, S. P.	HC	3·978	·280	·872	·179	·083	·254	20·508		2·31	−39. 54. 23·62	29·83	50·8		48·36	− 1. 23. 50·18
	26	Arcturus	HC	4·387	·703	·277	·598	·470	·664	19·550		52·86	31. 35. 26·93	29·82	51·3		35·53	70. 7. 24·26
	27	72 Ophiuchi	HC	2·834	·162	·713	·030	·864	·065	20·847		1·61	41. 54. 35·68	29·85	47·5	51·5	52·28	80. 26. 49·76
	28	Jupiter S. L.	HC	1·240	·594	·162	·474	·290	·500	21·795	1	59·48	64. 43. 33·55	29·91	43·0		2. 4·25	103. 16. 35·73
	29	Jupiter N. L.	HC	,,	,,	,,	,,	,,	,,	20·425	2	11·58	64. 42. 45·65	,,	,,		2. 4·17	103. 16. 31·60
	30	32 Pegasi	HC	1·598	·956	·512	·954	·675	·871	20·273		29·46	23. 48. 3·53	,,	,,		26·00	62. 19. 51·33
	31	β Piscis Australis	HC	4·761	·107	·704	·031	·905	·087	19·662		22·68	84. 20. 56·75	29·91	42·7	47·0	9. 0·68	123. 1. 19·23
	32	ξ Pegasi	HC	2·601	·962	·487	·822	·643	·848	20·338		30·64	41. 19. 4·71	,,	,,		51·82	79. 51. 18·33
	33	Wire (Nadir Obs.) R.	HC	4·033	·373	·932	·242	·151	·326	19·381		26·63	....					....
	34	Var. (R) Pegasi	HC	1·653	·998	·557	·876	·704	·905	19·830		15·10	41. 37. 49·17	,,	42·0		52·47	80. 10. 3·44
	35	*b* Aquarii	HC	3·613	·961	·553	·860	·721	·912	19·851		17·56	72. 14. 51·63	,,	,,		3. 2·52	110. 49. 15·95
	36	Piazzi XXIII. 133	HC	2·426	·796	·370	·674	·506	·693	20·453		25·03	65. 13. 59·10	29·91	41·5		2. 7·51	103. 47. 28·41
	37	Piazzi XXIII. 200	HC	2·814	·178	·737	·054	·898	·088	20·500		50·19	62. 9. 24·26	,,	,,		1. 51·52	100. 42. 37·58
	38	ψ Pegasi	HC	2·100	·464	·029	·340	·191	·369	20·430		4·48	27. 3. 38·55	,,	,,		30·21	65. 35. 30·56
	39	ι Sculptoris	HC	3·753	·107	·709	·001	·898	·060	20·438		47·71	81. 5. 21·78	,,	41·1		6. 1·72	119. 42. 45·30

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″
1, 2	+ 0·02	1·92	22·00
8	+ 0·06	3·97	
10	+ 0·04	4·83	
12		0·23	
16	+ 0·06	3·97	
17		4·84	
19		0·23	

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″
22	+ 0·23	7·35	16. 1·80
23		7·30	
24		4·24	
28, 29	+ 0·01	1·92	21·90

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″		″		″		″
3	+ 27·42	14	+ 17·01	31	+ 15·93		
4	+ 27·73	15	+ 16·96	32	+ 24·72		
5	+ 26·10	20	+ 7·59	34	+ 23·95		
6	+ 19·94	21	+ 15·76	35	+ 19·13		
7	+ 21·25	25	+ 7·74	36	+ 20·24		
9	+ 19·51	26	+ 2·01	37	+ 20·31		
11	+ 17·90	27	+ 19·41	38	+ 22·33		
13	+ 12·18	30	+ 27·69	49	+ 18·00		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″, = + 0″·458; from September 29, + 0″·280.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·520.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 9′. 34″·07.

8, 25. Very faint.
14. The cross-wires of microscope C fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head.
23, 24. The microscopes were read by W.
35. About the 9th magnitude.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Oct. 8	1	Jupiter N. L.	C	2·109	·540	·050	·393	·255	·385	19·745	2	44·08	64. 48. 19·58	29·64	43·1		2. 3·54	103. 22. 4·78
	2	Jupiter S. L.	C	,,	,,	,,	,,	,,	,,	21·146	6	29·69	64. 49. 5·19	,,	,,		2. 3·61	103. 22. 6·96
	3	32 Pegasi R.	C	4·690	·081	·584	·960	·910	·050	21·444	1	22·37	23. 48. 2·13	,,	,,		25·76	62. 19. 49·69
	4	32 Pegasi	C	1·381	·760	·310	·653	·521	·669	20·589	5	26·76	23. 48. 2·26	,,	,,			62. 19. 49·82
	5	B. F. 34	C	0·304	·705	·245	·576	·466	·600	20·882		31·95	18. 37. 7·45	29·70	41·1		19·80	57. 8. 49·05
	6	Piazzi 0. 128	C	2·105	·490	·035	·390	·279	·420	19·144		22·65	16. 47. 58·15	,,	,,		17·74	55. 19. 37·69
	7	η Cassiopeiæ	C	0·110	·508	·030	·366	·274	·426	20·800		16·48	— 5. 38. 8·02	,,	,,		5·80	32. 53. 7·98
	8	B. F. 92	C	0·391	·784	·310	·673	·528	·659	18·990		31·14	25. 11. 6·64	,,	,,		27·64	63. 42. 56·08
	9	Neptune	C	0·130	·559	·070	·404	·270	·427	19·509		33·69	47. 36. 9·19	29·71	41·5		1. 4·26	86. 8. 35·02
	10	78 Piscium	C	3·451	·838	·380	·710	·624	·745	20·090		17·70	20. 9. 53·20	,,	,,		21·58	58. 41. 36·58
	11	35 Ceti	C	4·657	·060	·575	·919	·840	·945	20·091		31·38	49. 41. 6·88	,,	,,		1. 9·14	88. 13. 37·82
	12	36 Ceti	C	4·531	·930	·454	·809	·710	·807	20·376	6	31·59	58. 56. 7·09	,,	,,		1. 37·22	97. 29. 6·11
	13	Polaris	C	1·000	·398	·930	·259	·168	·309	21·495		36·24	—37. 6. 48·26	,,	,,		44·43	1. 23. 49·11
Oct. 10	14	73 Draconis	K	1·986	·342	·898	·239	·142	·301	20·482	5	0·21	—23. 1. 24·29	30·05	44·7		25·08	15. 29. 32·43
	15	α Microscopii	K	3·844	·231	·807	·132	·034	·174	17·208	6	1·35	85. 33. 36·85	30·05	44·5	45·9	10.57·51	124. 15. 56·16
	16	β Cephei R.	K	3·806	·162	·702	·054	·959	·079	20·082	2	38·27	—18. 30. 13·77	30·05	42·8		19·83	20. 0. 48·20
	17	β Cephei	K	3·301	·667	·204	·562	·480	·621	20·222	5	12·38	—18. 30. 12·12	,,	,,			20. 0. 49·85
	18	16 Pegasi R.	K	2·958	·332	·844	·198	·128	·251	21·831	3	46·46	26. 9. 38·04	30·06	42·5		29·13	64. 41. 28·97
	19	16 Pegasi	K	4·281	·652	·168	·550	·443	·550	18·304	7	4·13	26. 9. 39·63	,,	,,			64. 41. 30·56
	20	Jupiter S. L.	K	0·215	·632	·151	·499	·342	·492	18·706	1	12·23	64. 50. 47·73	,,	42·4		2. 5·70	103. 23. 51·75
	21	Jupiter N. L.	K	,,	,,	,,	,,	,,	,,	17·418	6	24·42	64. 49. 59·92	,,	,,		2. 5·63	103. 23. 47·04
	22	σ Aquarii	K	3·271	·666	·199	·528	·418	·548	16·835		12·96	62. 47. 48·46	30·07	41·7		1. 55·14	101. 21. 5·40
	23	Groombridge 3834	K	2·798	·165	·688	·028	·972	·118	23·442		32·38	—24. 3. 52·12	,,	,,		26·54	14. 27. 3·14
	24	19 Piscis Australis	K	1·931	·322	·875	·202	·089	·231	23·681	5	47·72	81. 25. 23·22	30·08	41·5	45·0	6. 16·65	120. 3. 1·67
	25	λ Aquarii	K	1·889	·294	·831	·177	·034	·175	20·936		10·29	59. 43. 45·79	,,	,,		1. 41·57	98. 16. 49·16
	26	☽ S. L.	K	3·321	·724	·264	·598	·476	·583	22·392	2	24·89						
	27	☽ S. L.	K	,,	,,	,,	,,	,,	,,	22·302	4	25·10						
	28	☽ S. L.	K	,,	,,	,,	,,	,,	,,	22·252	5	25·00	58. 36. 0·80	30·09	42·1		1. 37·06	96. 5. 45·91
	29	☽ S. L.	K	,,	,,	,,	,,	,,	,,	22·238	6	26·11						
	30	☽ S. L.	K	,,	,,	,,	,,	,,	,,	22·172	7	25·41						
	31	λ Piscium	K	2·473	·887	·426	·755	·619	·754	20·548		33·23	50. 24. 8·73	30·10	40·8		1. 11·95	88. 56. 42·48
	32	Neptune	K	1·076	·491	·987	·339	·192	·341	20·111	7	51·39	47. 37. 26·89	30·11	39·2		1. 5·48	86. 9. 53·94
	33	35 Ceti	K	2·723	·146	·651	·992	·871	·994	14·772		28·88	49. 41. 4·38	,,	,,		1. 10·40	88. 13. 36·58
	34	Polaris	K	2·231	·629	·143	·482	·374	·521	19·322		36·05	—37. 6. 48·45	,,	39·4		45·22	1. 23. 48·13
	35	Piazzi I. 104	K	3·599	·012	·512	·873	·805	·920	19·784		16·79	14. 54. 52·29	30·12	39·2		15·94	53. 26. 30·03
	36	Wire (Nadir Obs.) R.	K	0·422	·837	·334	·688	·566	·722	25·683		24·44	....					....
Oct. 11	37	Wire (Nadir Obs.) R.	E	3·312	·705	·215	·566	·492	·626	20·552		24·76	....					....
Oct. 12	38	Wire (Nadir Obs.) R.	C	3·275	·650	·170	·503	·414	·570	20·650		24·74	....					....
	39	12 Ceti	C	2·657	·050	·608	·927	·790	·915	19·006		50·26	56. 8. 25·76	29·67	44·4		1. 26·70	94. 41. 14·26

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
1, 2	+ 0·01	1·89	21·75					3, 4	+ 28·35	13	+ 9·79	25	+ 21·20		
9		0·23						5	+ 20·57	14	+ 33·97	31	+ 21·77		
20, 21	+ 0·01	1·88	21·60					6	+ 19·95	15	+ 11·32	33	+ 17·93		
26, &c.	— 2·32	47. 51·92	15. 21·78					7	+ 17·04	16, 17	+ 32·97	34	+ 10·59		
32	+ 0·01	0·23						8	+ 18·56	18, 19	+ 28·97	35	+ 14·80		
								10	+ 17·38	22	+ 20·55	39	+ 19·55		
								11	+ 17·92	23	+ 29·44				
								12	+ 17·96	24	+ 15·86				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4′·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

1, 2. Limbs very indistinct.

7. The larger of two stars observed.

9, 15, 24. Very faint.

11. The reading of microscope A was omitted; it was afterwards supplied by comparison with other observations at the same circle reading.

26, &c. A correction of −0″·05 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Oct. 12	1	13 Ceti	C	0·194	·660	·142	·473	·330	·450	19·866		49·54	55. 46. 25·04	29·67	44·4		1. 25·52	94. 19. 12·36
	2	21 Cassiopeiæ	C	1·306	·657	·220	·543	·456	·616	20·890		32·56	−22. 46. 51·94	,,	,,		24·49	15. 44. 5·37
	3	☽ S. L.	C	0·174	·598	·140	·446	·324	·452	19·219	2	22·67						
	4	☽ S. L.	C	,,	,,	,,	,,	,,	,,	19·106	4	22·46	50. 0. 58·68	29·66	44·6		1. 9·38	87. 33. 45·09
	5	☽ S. L.	C	,,	,,	,,	,,	,,	,,	19·000	7	24·40						
Oct. 13	6	42 Aurigæ	E	0·312	·668	·202	·562	·458	·606	18·905		22·43	5. 0. 57·93	29·59	46·8	49·0	5·08	43. 32. 24·81
	7	43 Aurigæ	E	,,	,,	,,	,,	,,	,,	24·757	5	43·90	5. 4. 19·40	,,	,,		5·14	43. 35. 46·34
Oct. 14	8	☽ N. L.	S	2·909	·216	·812	·086	·959	·146	21·261	1	15·94						
	9	☽ N. L.	S	,,	,,	,,	,,	,,	,,	21·205	2	15·45						
	10	☽ N. L.	S	,,	,,	,,	,,	,,	,,	21·139	4	16·19						
	11	☽ N. L.	S	,,	,,	,,	,,	,,	,,	21·049	5	14·65	40. 59. 50·91	29·75	53·2		49·88	79. 9. 43·59
	12	☽ N. L.	S	,,	,,	,,	,,	,,	,,	21·015	6	15·07						
	13	☽ N. L.	S	,,	,,	,,	,,	,,	,,	20·970	7	15·17						
Oct. 15	14	δ Leonis	C	1·740	·011	·630	·882	·750	·950	20·276		32·89	30. 13. 8·39	29·85	53·6		33·53	68. 45. 3·72
	15	Polaris S.P.	C	3·564	·860	·480	·748	·664	·844	21·311		4·44	−39. 54. 20·06	29·89	58·0		47·76	−1. 23. 46·02
Oct. 16	16	☉ N. L.	C	3·931	·240	·859	·114	·980	·179	19·491	1	24·52	60. 0. 0·02	29·88	58·8	59·0	1. 38·44	98. 48. 57·92
	17	☉ S. L.	C	1·032	·324	·963	·210	·069	·283	19·654		29·53	60. 32. 5·03	,,	,,		1. 40·58	98. 48. 54·23
	18	Arcturus	C	3·956	·254	·990	·119	·011	·186	20·345	3	53·49	31. 35. 28·99	29·87	59·4	59·5	35·01	70. 7. 25·80
	19	Wire (Nadir Obs.) R.	C	3·459	·771	·490	·623	·534	·727	20·367		25·18	....					....
	20	Regulus	HC	4·321	·614	·365	·479	·401	·570	20·752		30·91	38. 51. 6·41	29·71	52·7	54·5	46·22	77. 23. 14·43
	21	α Ursæ Majoris	HC	3·941	·196	·977	·099	·031	·226	21·419		31·04	−10. 58. 53·46	29·71	56·9		11·05	27. 32. 17·29
	22	δ Leonis	HC	1·012	·296	·068	·178	·039	·236	21·583	5	35·11	30. 13. 10·61	,,	57·2		33·13	68. 45. 5·54
Oct. 17	23	ζ Draconis	HC	4·470	·691	·322	·592	·538	·716	20·028		12·25	−14. 24. 12·25	29·71	60·0		14·53	24. 6. 55·02
	24	β Draconis	HC	4·231	·470	·102	·364	·296	·503	17·566	1	36·04	−0. 55. 48·46	,,	59·5		0·92	37. 35. 32·42
	25	α Ophiuchi	HC	1·711	·964	·583	·843	·722	·935	20·141		26·37	38. 48. 1·87	,,	,,		45·50	77. 20. 9·17
	26	β Ophiuchi	HC	3·392	·653	·310	·510	·400	·627	20·293	5	14·55	46. 49. 50·05	,,	,,		1. 0·29	85. 22. 12·14
	27	72 Ophiuchi	HC	3·212	·463	·114	·339	·209	·430	20·257	5	1·88	41. 54. 37·38	,,	58·2		50·92	80. 26. 50·10
	28	δ Ursæ Minoris	HC	0·732	·975	·625	·868	·769	·003	21·009		57·83	−35. 7. 26·67	,,	,,		39·92	3. 23. 15·21
	29	109 Herculis	HC	3·049	·280	·937	·178	·038	·262	21·228		25·39	29. 45. 0·89	,,	57·4		32·49	68. 16. 55·18
	30	χ Draconis	HC	1·820	·076	·729	·957	·895	·110	18·895		26·71	−21. 11. 57·79	,,	,,		22·06	17. 19. 1·95
	31	Cephei 51 S.P.	HC	2·262	·520	·191	·434	·310	·524	19·921		54·85	−41. 16. 29·65	,,	,,		49·88	−2. 45. 57·73
	32	β Lyræ	HC	3·776	·011	·678	·925	·829	·030	20·282		39·20	18. 15. 14·70	,,	56·5		18·79	56. 46. 55·29
	33	Wire (Nadir Obs.) R.	HC	4·289	·562	·181	·450	·368	·577	18·916		24·37	....					....
	34	η Piscis Australis	HC	2·011	·266	·943	·170	·048	·259	20·124		45·92	80. 28. 21·42	29·73	53·9	57·1	5. 28·41	119. 5. 11·63
	35	Jupiter N. L.	HC	2·840	·115	·778	·990	·849	·063	19·680	1	22·21	64. 53. 57·71	,,	,,		2. 1·70	103. 27. 40·56
	36	Jupiter S. L.	HC	,,	,,	,,	,,	,,	,,	21·018		6·59	64. 54. 42·09	,,	,,		2. 1·76	103. 27. 42·60
	37	ο Cephei	HC	0·078	·331	·998	·247	·135	·368	18·373		47·66	−15. 54. 36·84	29·73	52·9		16·37	22. 36. 28·59

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
3, &c.	− 2·54	44. 0·07	15. 44·63					1	+ 19·38	21	− 22·94	29	+ 22·77		
8, &c.	− 2·23	38. 22·04	16. 3·11					2	+ 17·40	22	− 12·39	30	+ 28·80		
16	+ 0·22	7·74	16. 5·40					6	− 16·57	23	+ 21·89	31	− 28·35		
17		7·78						7	− 16·66	24	+ 23·58	32	+ 27·25		
35, 36	0·00	1·85	21·20					14	− 12·20	25	+ 17·17	34	+ 14·49		
								15	+ 12·69	26	+ 15·91	37	+ 28·50		
								18	− 0·28	27	+ 18·74				
								20	− 11·98	28	+ 27·39				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·305; from October 14, + 0″·198.
Correction for Telescope-Micrometer = Micrometer Reading, × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 9′. 35″·50.

3, &c. Limb very faint from cloud. A correction of − 0″·07 has been applied to the Geocentric N.P.D. of center to reduce to the true Meridian.
8, &c. A correction of − 0″·07 has been applied to the Geocentric N.P.D. of center to reduce to the true Meridian.
16, 17. The microscopes were read by K and W.
18. Cloudy.
20. Very tremulous.
22. Very faint.
35, 36. Very tremulous.
37. A double star; observed the larger. The cross-wires of microscope C fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Oct. 23	1	α Coronæ	E	2·153	·354	·044	·302	·136	·391	19·727	5	38·83	24. 18. 14·99	29·96	58·3	59·5	25·85	62. 50. 2·64
	2	ζ Ursæ Minoris	E	3·881	·029	·717	·989	·894	·157	22·929	5	14·92	−26. 43. 8·92	29·95	58·4		28·80	11. 47. 44·08
	3	72 Ophiuchi	E	3·201	·424	·085	·322	·168	·439	20·292	5	2·16	41. 54. 38·32	29·90	55·2	58·0	51·56	80. 26. 51·68
	4	δ Ursæ Minoris	E	0·732	·895	·565	·835	·674	·975	21·093		57·80	−35. 7. 26·04	,,	,,		40·42	3. 23. 15·34
	5	α Lyræ	E	1·153	·391	·028	·265	·145	·426	21·403	1	38·74	12. 48. 14·90	,,	,,		13·07	51. 19. 49·77
	6	Cephei 51 S.P.	E	2·396	·606	·296	·543	·378	·663	19·775		56·68	−41. 16. 27·16	,,	,,		50·42	−2. 45. 55·78
	7	β Lyræ	E	3·454	·675	·342	·606	·470	·700	20·802	1	39·78	18. 15. 15·94	29·89	53·2	57·0	19·03	56. 46. 56·77
	8	Jupiter N. L.	E	3·259	·536	·147	·398	·256	·505	19·880	2	54·16	64. 54. 30·32	29·86	49·7	55·5	2. 3·33	103. 28. 14·44
	9	Jupiter S. L.	E	,,	,,	,,	,,	,,	,,	21·198	5	37·70	64. 55. 13·86	,,	,,		2. 3·40	103. 28. 16·45
	10	Wire (Nadir Obs.) R.	E	3·412	·656	·286	·568	·456	·695	20·456		23·26	....					....
Oct. 24	11	Wire (Nadir Obs.) R.	C	3·409	·704	·304	·568	·478	·675	20·456		23·91	....					....
	12	A Cassiopeiæ	C	1·461	·700	·340	·594	·494	·735	22·165		22·23	−18. 6. 1·61	29·98	48·9		19·09	20. 25. 1·10
	13	Piazzi I. 104	C	2·083	·360	·990	·254	·138	·362	22·525	6	12·96	14. 54. 49·12	,,	,,		15·55	53. 26. 26·47
	14	o Piscium	C	2·550	·815	·440	·691	·550	·765	18·959		37·63	42. 58. 13·79	,,	,,		54·34	81. 30. 29·93
	15	Piazzi I. 170	C	0·791	·072	·714	·982	·844	·055	17·740		9·61	14. 10. 45·77	,,	,,		14·75	52. 42. 22·32
	16	1 Arietis	C	4·792	·044	·710	·054	·820	·128	19·790		26·74	29. 51. 2·90	,,	48·5		33·53	68. 22. 58·23
Oct. 25	17	Wire (Nadir Obs.) R	D	3·512	·791	·411	·675	·588	·778	20·274		23·96	....					....
	18	*b* Aquarii	D	3·588	·811	·504	·737	·610	·829	20·042		18·90	72. 14. 55·06	30·14	51·4	54·5	3. 0·37	110. 49. 17·23
	19	κ Piscium	D	4·108	·342	·003	·251	·146	·340	19·970		48·36	50. 55. 24·52	,,	,,		1. 11·80	89. 27. 58·12
	20	71 Pegasi	D	0·460	·692	·361	·610	·455	·680	20·115		8·77	29. 41. 44·93	,,	51·3		33·30	68. 13. 40·03
	21	γ Cephei	D	3·661	·884	·531	·783	·722	·928	20·434		36·96	−25. 24. 46·88	,,	51·2		27·75	13. 6. 7·17
	22	γ Ursæ Majoris S.P.	D	1·362	·602	·311	·551	·391	·630	20·077		5·46	−74. 2. 18·38	,,	51·7		3. 21·19	−35. 34. 17·77
	23	Polaris	D	2·019	·259	·906	·168	·031	·261	19·618		28·61	−37. 6. 55·23	30·15	50·5	53·0	44·26	1. 23. 42·31
	24	o Piscium	D	2·392	·631	·260	·518	·359	·590	19·260		37·17	42. 58. 13·33	,,	,,		54·47	81. 30. 29·60
	25	β Leonis	E	2·412	·656	·284	·563	·381	·634	20·835	2	34·57	36. 9. 10·73	30·16	52·5	55·5	42·58	74. 41. 15·11
	26	γ Ursæ Majoris	E	1·782	·026	·686	·940	·804	·052	19·828		21·18	− 2. 57. 2·66	,,	,,		3·01	35. 34. 16·13
	27	Polaris S.P.	E	3·636	·856	·507	·796	·669	·886	21·368		8·81	−39. 54. 15·03	30·19	56·6	57·0	48·37	−1. 23. 41·60
Oct. 26	28	⊙ S. L.	E	4·428	·699	·342	·586	·473	·670	20·349	1	24·14	64. 6. 0·30	30·15	58·1	59·0	1. 58·09	102. 23. 4·02
	29	⊙ N. L.	E	2·340	·620	·262	·489	·346	·538	20·196	3	8·24	63. 33. 44·40	,,	,,		1. 55·35	102. 23. 1·62
	30	Arcturus	E	3·167	·398	·057	·328	·157	·371	21·871		55·29	31. 35. 31·45	,,	,,		35·43	70. 7. 28·68
	31	Venus, center	E	1·412	·664	·319	·593	·379	·674	23·513	6	3·20	65. 54. 39·36	30·14	58·0		2. 8·12	104. 28. 4·48
	32	ε Boötis	E	1·801	·034	·668	·993	·780	·064	23·342		23·46	23. 49. 59·62	,,	,,		25·45	62. 21. 46·87
	33	β Ursæ Minoris	E	3·787	·012	·664	·968	·846	·089	23·483	5	30·97	−23. 12. 52·87	,,	,,		24·71	15. 18. 4·22
	34	Mercury, center	E	2·673	·865	·616	·842	·614	·966	23·218		12·26	73. 5. 48·42	30·11	58·6	62·0	3. 6·80	111. 40. 9·36
	35	α Serpentis	E	0·141	·362	·022	·284	·093	·361	20·786	2	13·14	44. 36. 49·30	,,	,,		56·67	83. 9. 7·77
	36	α Aquarii	E	0·483	·739	·400	·638	·450	·684	16·794	2	16·64	52. 24. 52·80	30·00	49·2	54·0	1. 15·72	90. 57. 30·32
	37	Jupiter N. L.	E	2·986	·237	·924	·172	·978	·282	19·058	1	10·77	64. 53. 46·93	,,	,,		2. 3·97	103. 27. 31·40
	38	Jupiter S. L.	E	,,	,,	,,	,,	,,	,,	20·389	2	56·16	64. 54. 32·32	,,	,,		2. 4·04	103. 27. 35·86
	39	μ Ursæ Majoris S.P.	E	3·654	·884	·623	·859	·700	·967	20·562		43·44	−86. 9. 40·40	29·99	49·4	54·0	12. 4·90	−47. 50. 23·50

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
8, 9	0·00	1·81	20·80					1	+ 7·74	13	+ 17·49	22	− 19·67	33	+ 0·03
28	+ 0·20	8·07	16. 8·10					2	+ 9·29	14	+ 16·21	23	+ 16·19	35	+ 6·65
29		8·03						3	+ 18·29	15	+ 15·91	24	+ 16·22	36	+ 22·71
31	+ 0·25	4·80						4	+ 26·79	16	+ 16·08	25	− 11·01	39	− 22·49
34		7·66						5	+ 27·06	18	+ 16·56	26	− 19·83		
37, 38	0·00	1·80	20·50					6	− 27·89	19	+ 21·87	27	+ 16·39		
								7	+ 26·75	20	+ 26·03	30	− 2·40		
								12	+ 16·26	21	+ 28·47	32	+ 1·81		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the readings of B and F being greater than those of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4r·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

8, 9. Very faint.

15. The readings of the microscope-micrometers have been decreased 1r.

28, 29. The microscopes were read by W and H C.

31. Observed through cloud.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Oct. 26	1	β Piscis Australis ..	E	4·421	·634	·362	·638	·493	·734	20·669		34·12	84. 21. 10·28	29·99	49·4		8. 55·58	123. 1. 27·66
	2	Groombridge 3834 .	E	4·540	·770	·410	·682	·616	·867	20·288		27·24	−24. 3. 56·60	,,	,,		26·05	14. 26. 59·15
	3	19 Piscis Australis .	E	3·118	·336	·030	·277	·104	·404	21·904		55·00	81. 25. 31·16	,,	49·3		6. 9·39	120. 3. 2·35
	4	ι Cephei	E	2·158	·403	·027	·328	·172	·425	19·647		38·13	−14. 1. 45·71	,,	,,		14·58	24. 29. 21·51
	5	Fomalhaut	E	0·224	·437	·116	·416	·194	·473	20·275	1	1·99	81. 41. 38·15	,,	,,		6. 20·36	120. 19. 20·31
	6	α Ursæ Majoris S.P.	E	2·022	·227	·967	·234	·038	·325	20·372	2	53·51	−66. 1. 30·33	,,	,,		2. 10·46	− 27. 32. 18·99
	7	Piazzi XXII. 282 ..	E	1·337	·583	·274	·565	·372	·648	20·676	6	23·10	86. 42. 59·26	29·98	49·6	54·0	13.30·83	125. 27. 51·89
	8	o Cephei.....	E	4·038	·262	·926	·183	·097	·336	19·974		45·47	−15. 54. 38·37	,,	,,		16·62	22. 36. 26·81
	9	b Aquarii.....	E	3·758	·989	·691	·938	·802	·037	19·734		19·89	72. 14. 56·05	,,	,,		2. 59·85	110. 49. 17·70
	10	71 Pegasi.....R.	E	0·711	·973	·608	·883	·752	·011	22·167	2	37·88	29. 41. 45·96	,,	,,		33·24	68. 13. 41·00
	11	71 Pegasi.....	E	3·681	·938	·588	·852	·687	·926	23·079	6	8·71	29. 41. 44·87	,,	,,			68. 13. 39·91
	12	γ Cephei.....	E	1·982	·224	·860	·134	·037	·262	23·367		35·72	−25. 24. 48·12	,,	,,		27·70	13. 6. 5·98
	13	Bradley 3166....R.	E	4·360	·594	·252	·526	·413	·675	19·892	2	3·28	−15. 35. 39·44	,,	,,		16·27	22. 55. 26·09
	14	Bradley 3166.....	E	3·093	·321	·989	·280	·153	·373	19·910	5	45·16	−15. 35. 38·68	,,	,,			22. 55. 26·85
	15	Wire (Nadir Obs.) R.	E	3·267	·537	·182	·436	·322	·562	20·710		24·17	....					....
	16	α Andromedæ	E	4·661	·856	·527	·846	·669	·925	20·817		51·85	23. 6. 28·01	29·95	48·6		24·90	61. 38. 14·71
	17	γ Pegasi.....	E	4·612	·873	·526	·768	·663	·867	19·878		17·15	37. 0. 53·29	,,	,,		43·98	75. 32. 59·07
	18	ι Sculptoris	E	4·242	·464	·161	·398	·276	·521	19·958		57·37	81. 5. 33·53	29·94	48·7		5. 56·33	119. 42. 51·66
	19	κ Draconis S.P.	E	4·173	·370	·052	·298	·183	·419	21·223		35·13	−57. 58. 48·71	,,	,,		1. 33·01	− 19. 28. 59·92
	20	21 Cassiopeiæ	E	0·555	·823	·452	·743	·624	·868	22·131		27·02	−22. 46. 56·82	,,	,,		24·50	15. 44. 0·48
	21	Piazzi 0. 216.....	E	3·967	·222	·860	·104	·974	·246	20·135		45·89	48. 5. 22·05	,,	,,		1. 4·90	86. 37. 48·73
	22	Neptune.....	E	0·745	·011	·660	·913	·742	·972	20·656		45·90	47. 47. 22·06	,,	,,		1. 4·21	86. 19. 47·84
	23	Bradley 114.....	E	1·592	·820	·453	·748	·619	·847	20·396		28·84	−13. 46. 55·00	,,	,,		14·31	24. 44. 12·49
	24	Bradley 117.....	E	4·275	·496	·147	·428	·353	·568	20·633		22·43	−27. 29. 1·41	,,	,,		30·34	11. 1. 50·05
	25	Bradley 137.....	E	0·100	·367	·014	·265	·128	·407	20·600		5·44	−27. 43. 18·40	,,	,,		30·65	10. 47. 32·75
	26	Polaris.....	E	1·501	·747	·376	·666	·507	·765	20·528		28·49	−37. 6. 55·35	29·91	48·6	51·5	44·08	1. 23. 42·37
Oct. 27	27	Polaris S.P.....	JC	0·431	·566	·928	·896	·497	·554	19·392		51·27	−39. 54. 14·03	29·86	45·4	49·0	48·95	− 1. 23. 41·18
Oct. 28	28	⊙ N. L.	JC	4·662	·922	·188	·148	·789	·779	18·084	2	27·87	64. 14. 22·37	29·87	47·0	50·0	2. 0·42	103. 3. 45·31
	29	⊙ S. L.	JC	1·432	·715	·978	·967	·561	·550	19·092		44·50	64. 46. 39·20	,,	,,		2. 3·34	103. 3. 47·62
	30	ε Boötis	JC	4·209	·494	·756	·758	·393	·327	19·921		4·38	23. 49. 59·08	29·86	47·7		25·75	62. 21. 46·63
	31	Venus S. L.....	JC	4·124	·418	·683	·691	·314	·252	19·878	2	59·37	66. 44. 54·07	,,	,,		2. 14·84	105. 18. 20·98
	32	Venus N. L.	JC	,,	,,	,,	,,	,,	,,	19·577		47·23	66. 44. 41·93	,,	,,		2. 14·80	105. 18. 18·56
	33	α Coronæ.....	JC	2·610	·906	·139	·168	·770	·697	19·747		19·75	24. 18. 14·45	29·89	49·0		26·28	62. 50. 2·53
	34	Lacaille 8442.....	JC	1·839	·183	·412	·436	·074	·966	20·280	7	50·91	80. 52. 45·61	29·95	42·7	46·5	5. 53·13	119. 30. 0·54
	35	Lacaille 8466.....	JC	0·617	·977	·216	·231	·864	·748	18·971		54·17	80. 55. 48·87	,,	,,		5. 54·99	119. 33. 5·66
	36	α Cygni	JC	0·086	·455	·624	·698	·333	·214	17·805		40·44	6. 39. 35·14	,,	,,		6·90	45. 11. 3·84
	37	α Microscopii	JC	3·566	·918	·169	·180	·824	·741	18·533		39·96	85. 33. 34·66	29·95	42·1	45·5	10.58·82	124. 15. 55·28
	38	ι Ursæ Majoris S.P.	JC	2·046	·373	·625	·665	·264	·189	18·884		18·36	−79. 52. 46·94	29·95	41·1		5. 21·06	−41. 26. 46·20
	39	ξ Cygni	JC	2·972	·341	·468	·549	·200	·088	20·396		5·77	8. 4. 0·47	,,	,,		8·40	46. 35. 36·67
	40	Wire (Nadir Obs.) R.	JC	4·344	·739	·897	·968	·626	·534	19·580		4·35	....					....

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
22		0·23						1	+ 12·65	10, 11	+ 26·10	23	+ 20·34	36	+ 33·78
28		8·08						2	+ 33·60	12	+ 28·77	24	+ 18·82	37	+ 10·02
29	+ 0·20	8·12	16. 8·60					3	+ 13·67	13, 14	+ 28·49	25	+ 18·33	38	− 25·93
31, 32	+ 0·24	4·84	4·90					4	+ 32·73	16	+ 24·82	26	+ 16·59	39	+ 33·90
								5	+ 13·73	17	+ 22·71	27	+ 17·09		
								6	− 25·81	18	+ 13·97	30	+ 1·33		
								7	+ 12·43	19	− 19·06	33	+ 6·64		
								8	+ 30·90	20	+ 22·20	34	+ 11·22		
								9	+ 16·44	21	+ 18·92	35	+ 11·32		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″, = + 0″·399; from October 27, + 0″·153.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·685 × (wire − 4), for objects above the pole.
Zenith Point Correction, = + 9′. 36″·16; from October 27, + 8′. 54″·70.

8. A close double star; observed the larger.
10. The mercury rather unsteady.
27. The cross-wires of microscopes C and D fell on the negative side of the micrometer-zeros. The fractional parts of the readings were taken from the micrometer-heads.
28, 29. The microscopes were read by W and H C.
31. Computed distance of limb from illuminated edge, 2′. 48′; correction applied, + 0″·01.
October 27d. 22h. When the instrument was let down into its place after having been raised, a small fragment of cotton waste was left between one of the pivots and the Y; it was removed on October 29 at noon. The observations of October 27 and 28 have been reduced with a Zenith Point derived from the observations of October 28.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov. 2	1	1 Arietis	JC	4·528	·879	·460	·760	·651	·803	18·971	1	45·26						
	2	1 Arietis	JC	,,	,,	,,	,,	,,	,,	19·053		45·59	29. 50. 56·06	30·46	35·8		34·97	68. 22. 52·83
	3	1 Arietis	JC	,,	,,	,,	,,	,,	,,	19·091	7	45·14						
	4	50 Cassiopeiæ	JC	0·511	·861	·446	·756	·650	·823	19·686		2·48	−20. 17. 46·79	,,	,,		22·54	18. 13. 12·47
	5	Piazzi II. 61	JC	3·981	·330	·879	·208	·116	·261	19·699		34·34	10. 40. 45·07	30·46	36·3		11·48	49. 12. 18·35
	6	Eurynome	JC	2·266	·638	·187	·492	·349	·512	21·453	5	48·22	35. 19. 58·95	,,	35·8		42·92	73. 41. 58·79
Nov. 3	7	☽ S. L.	C	0·870	·262	·830	·133	·000	·155	20·564	2	53·76						
	8	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·491	5	52·53	69. 8. 3·88	30·40	43·4		2. 35·75	106. 36. 38·67
	9	ρ Capricorni	C	3·460	·846	·405	·734	·624	·746	20·649		36·60	69. 40. 47·33	,,	,,		2. 40·36	108. 14. 49·49
	10	τ^2 Capricorni	C	4·229	·624	·166	·496	·394	·516	19·910	1	60·00						
	11	τ^2 Capricorni	C	,,	,,	,,	,,	,,	,,	19·960		59·85	66. 51. 10·57	,,	43·3		2. 19·22	105. 24. 51·59
	12	τ^2 Capricorni	C	,,	,,	,,	,,	,,	,,	20·024	7	59·68						
Nov. 4	13	Wire (Nadir Obs.) R.	E	2·864	·219	·747	·104	·993	·157	20·361		49·01	....					....
	14	12 Can. Ven. (2d star)	D	4·022	·340	·893	·202	·132	·269	20·870	6	14·67	12. 26. 25·40	30·25	42·6	46·5	13·17	50. 58. 0·37
	15	Polaris S.P.	D	3·246	·589	·169	·476	·387	·519	21·069		37·97	−39. 54. 11·30	,,	42·8		49·85	−1. 23. 39·35
	16	Spica	D	2·616	·964	·538	·856	·721	·871	20·508	5	37·31	61. 54. 48·04	,,	43·0		1. 50·30	100. 28. 0·14
	17	η Ursæ Majoris	D	2·335	·678	·238	·551	·451	·604	21·495		54·96	1. 30. 5·69	,,	43·1		1·56	40. 1. 29·05
	18	η Boötis	D	1·534	·882	·445	·755	·624	·774	21·331	5	58·86	32. 24. 9·59	,,	43·3		37·81	70. 56. 9·20
	19	α Draconis	D	0·686	·039	·576	·912	·828	·982	21·270	5	6·64	−13. 31. 42·63	,,	,,		14·34	24. 59. 24·83
	20	Arcturus	D	2·870	·200	·770	·089	·931	·107	21·254	1	20·64						
	21	Arcturus	D	,,	,,	,,	,,	,,	,,	21·320		20·45	31. 35. 31·39	30·25	43·7		36·61	70. 7. 29·80
	22	Arcturus	D	,,	,,	,,	,,	,,	,,	21·385	7	20·90						
	23	ρ Boötis	D	3·808	·142	·722	·029	·958	·082	20·292	5	44·18	20. 30. 54·91	,,	43·9		22·27	59. 2. 38·98
Nov. 5	24	⊙ N. L.	D	1·408	·769	·358	·636	·524	·668	20·003	1	9·51	66. 48. 20·24	30·25	44·4	48·0	2. 17·90	105. 38. 2·27
	25	⊙ S. L.	D	3·550	·935	·508	·783	·705	·798	20·150		24·29	67. 20. 35·02	,,	,,		2. 21·51	105. 37. 59·43
	26	γ^2 Ursæ Minoris	D	3·328	·680	·234	·572	·498	·635	20·487		22·88	−20. 49. 26·39	,,	44·6		22·61	17. 41. 32·80
	27	α Coronæ	D	1·424	·774	·330	·652	·518	·667	19·865	1	5·53						
	28	α Coronæ	D	,,	,,	,,	,,	,,	,,	19·942		5·58	24. 18. 16·11	,,	,,		26·84	62. 50. 4·75
	29	α Coronæ	D	,,	,,	,,	,,	,,	,,	19·974	7	5·04						
	30	γ Herculis	D	2·811	·152	·732	·037	·904	·066	20·189	5	38·00	31. 59. 48·73	,,	45·1		37·08	70. 31. 47·61
	31	η Draconis	D	2·271	·592	·157	·500	·395	·561	20·862		29·67	−10. 20. 19·60	,,	,,		10·83	28. 10. 51·37
	32	ι Capricorni	D	2·429	·801	·380	·707	·538	·710	20·708		34·94	68. 49. 45·67	30·23	41·8	44·7	2. 33·09	107. 23. 40·56
	33	θ Ursæ Majoris S.P.	D	1·525	·897	·472	·816	·671	·824	20·960		49·72	−76. 10. 59·55	,,	41·4		3. 58·66	−37. 43. 36·41
	34	β^1 Cephei	D	2·236	·597	·142	·469	·388	·557	21·100		37·01	−18. 30. 12·26	,,	,,		20·01	20. 0. 49·53
	35	β^2 Cephei	D	,,	,,	,,	,,	,,	,,	20·976	5	32·31	−18. 30. 16·96	,,	,,		20·01	20. 0. 44·83
	36	γ Capricorni	D	4·556	·912	·502	·810	·695	·829	19·932	1	20·16						
	37	γ Capricorni	D	,,	,,	,,	,,	,,	,,	20·021		21·40	68. 41. 31·47	,,	41·1		2. 32·24	107. 15. 25·51
	38	γ Capricorni	D	,,	,,	,,	,,	,,	,,	20·070	7	20·67						
	39	11 Cephei	D	4·158	·496	·046	·388	·337	·470	20·501		13·93	−19. 13. 35·34	,,	,,		20·87	19. 17. 25·59

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
6	+ 0·06	4·88						1, &c.	+ 16·82	17	− 10·12	31	+ 10·94		
7, 8	− 1·11	50. 33·92	14. 48·84					4	+ 15·00	18	− 5·23	32	+ 16·27		
24	+ 0·18	8·27	16. 10·60					5	+ 13·49	19	− 9·71	33	− 28·70		
25		8·30						9	+ 15·05	20, &c.	− 4·72	34	+ 36·77		
								10, &c.	+ 16·26	23	− 2·35	35	+ 36·77		
								14	− 13·85	26	+ 1·03	36, &c.	+ 16·49		
								15	+ 19·89	27, &c.	+ 4·64	39	+ 36·90		
								16	− 3·05	30	+ 9·34				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

5. The microscope-micrometer readings have been decreased 1^r.

24, 25. The microscopes were read by W and H C.

7, 8. Very faint; cloudy.

27. Cloudy.

9. Double; the first star observed.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Combined Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov. 5	1	☽ S. L.	D	4·557	·905	·457	·771	·682	·810	20·400	1	29·21				-		
	2	☽ S. L.	D	,,	,,	,,	,,	,,	,,	20·327	2	27·99						
	3	☽ S. L.	D	,,	,,	,,	,,	,,	,,	20·320	3	29·01						
	4	☽ S. L.	D	,,	,,	,,	,,	,,	,,	20·260	4	28·15	64. 1. 39·01	30·23	40·3		2. 2·43	101. 30. 42·22
	5	☽ S. L.	D	,,	,,	,,	,,	,,	,,	20·206	5	27·46						
	6	☽ S. L.	D	,,	,,	,,	,,	,,	,,	20·172	6	27·40						
	7	☽ S. L.	D	,,	,,	,,	,,	,,	,,	20·180	7	28·75						
	8	ξ^1 Cephei	D	3·211	·541	·097	·430	·362	·489	18·636	2	12·88	−12. 30. 36·39	,,	,,		13·30	26. 0. 32·11
	9	ξ^2 Cephei	D	,,	,,	,,	,,	,,	,,	18·700	2	15·09	−12. 30. 34·18	,,	,,		13·30	26. 0. 34·32
	10	Jupiter N. L.	D	0·251	·632	·195	·500	·366	·519	19·591	5	41·45	64. 46. 52·18	,,	39 9		2. 6·70	103. 20. 38·94
	11	Jupiter S. L.	D	,,	,,	,,	,,	,,	,,	20·790	6	22·09	64. 47. 32·82	,,	,,		2. 6·76	103. 20. 39·64
	12	θ Aquarii	D	1·108	·472	·048	·361	·219	·371	20·368	1	3·31						
	13	θ Aquarii	D	,,	,,	,,	,,	,,	,,	20·412		2·84	59. 53. 13·60	,,	39·7		1. 43·11	98. 26. 18·51
	14	θ Aquarii	D	,,	,,	,,	,,	,,	,,	20·467	7	2·46						
	15	σ Aquarii	D	0·741	·130	·680	·999	·862	·018	20·286	1	38·49						
	16	σ Aquarii	D	,,	,,	,,	,,	,,	,,	20·340		38·41	62. 47. 49·31	,,	39·9		1. 56·19	101. 21. 7·30
	17	σ Aquarii	D	,,	,,	,,	,,	,,	,,	20·420	7	38·85						
	18	Wire (Nadir Obs.) R.	D	3·960	·324	·859	·184	·120	·257	18·435		50·18	....					....
	19	μ Pegasi R.	D	3·261	·626	·154	·499	·433	·550	21·994	3	10·52	27. 33. 38·75	,,	40·0		31·29	66. 5. 31·84
	20	μ Pegasi	D	1·220	·590	·151	·469	·347	·479	20·940	6	27·23	27. 33. 37·96	,,	,,			66. 5. 31·05
	21	Bradley 3058 R.	D	3·212	·532	·089	·416	·289	·448	18·693		10·77	−32. 9. 21·50	,,	,,		37·68	6. 21. 22·62
	22	Bradley 3058	D	4·081	·439	·993	·308	·240	·376	19·340	5	29·39	−32. 9. 19·88	,,	,,			6. 21. 24·24
	23	Neptune	D	0·928	·291	·833	·148	·018	·177	20·121		41·18	47. 52. 51·91	30·26	39·2		1. 6·39	86. 25. 19·87
	24	44 Andromedæ	D	4·152	·496	·039	·381	·303	·422	19·301		31·13	10. 5. 41·86	,,	39·0		10·71	48. 37. 14·37
	25	87 Piscium	D	0·437	·810	·341	·658	·518	·692	19·190	2	40·28	36. 1. 51·01	,,	,,		43·71	74. 33. 56·52
	26	Polaris	D	1·765	·136	·681	·001	·916	·049	18·895		52·21	−37. 6. 57·06	,,	38·9		45·49	1. 23. 39·25
	27	τ Andromedæ	D	0·402	·751	·292	·649	·521	·677	22·979		48·19	11. 33. 58·92	,,	38·6		12·32	50. 5. 33·04
	28	B. A. C. 516	D	0·552	·936	·466	·830	·699	·853	22·051		27·04	16. 53. 37·77	,,	,,		18·28	55. 25. 17·85
	29	Piazzi I. 170	D	3·242	·604	·141	·490	·402	·521	20·919		31·99	14. 10. 42·72	,,	38·2		15·22	52. 42. 19·74
	30	Leto	D	4·210	·586	·110	·456	·341	·472	21·182	5	39·30	41. 56. 50·03	,,	38·0		54·11	80. 29. 1·76
Nov. 6	31	☉ N. L.	JC	3·769	·174	·728	·045	·962	·050	21·174	2	16·10	67. 6. 26·83	30·26	43·9	46·3	2. 20·10	105. 56. 11·34
	32	☉ S. L.	JC	0·842	·258	·827	·134	·995	·128	21·635		31·06	67. 38. 41·79	,,	,,		2. 23·80	105. 56. 8·17
	33	η Piscis Australis	JC	1·163	·536	·107	·418	·322	·441	20·027		54·44	80. 28. 5·17	30·41	41·1		5. 45·16	119. 5. 12·13
	34	α Aquarii	JC	1·146	·527	·090	·394	·261	·397	14·370	1	38·81						
	35	α Aquarii	JC	,,	,,	,,	,,	,,	,,	14·451		39·48	52. 24. 49·91	,,	,,		1. 18·04	90. 57. 29·75
	36	α Aquarii	JC	,,	,,	,,	,,	,,	,,	14·506	7	39·24						
	37	Jupiter N. L.	JC	4·031	·424	·970	·287	·196	·317	19·653	2	38·26	64. 45. 48·99	,,	,,		2. 7·03	103. 19. 36·09
	38	Jupiter S. L.	JC	,,	,,	,,	,,	,,	,,	20·874	5	18·40	64. 46. 29·13	,,	,,		2. 7·10	103. 19. 36·30
	39	θ Aquarii	JC	1·093	·471	·044	·358	·238	·383	20·433		3·64	59. 53. 14·37	,,	,,		1. 43·43	98. 26. 19·60
	40	σ Aquarii	JC	0·812	·212	·754	·075	·943	·101	20·139	1	38·19						
	41	σ Aquarii	JC	,,	,,	,,	,,	,,	,,	20·217		38·94	62. 47. 49·40	30·42	40·5		1. 56·78	101. 21. 7·98
	42	σ Aquarii	JC	,,	,,	,,	,,	,,	,,	20·282	7	38·87						

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
1, &c.	− 1·90	49. 19·44	15. 1·52					8	+ 36·38	26	+ 20·09				
10, 11	− 0·01	1·74	20·00					9	+ 36·38	27	+ 18·89				
23		0·23						12, &c.	+ 19·77	28	+ 18·56				
30	0·00	4·18						15, &c.	+ 18·77	29	+ 17·98				
31	+ 0·18	8·29	16. 10·90					19, 20	+ 28·84	33	+ 12·49				
32		8·32						21, 22	+ 33·90	34, &c.	+ 22·20				
37, 38	− 0·01	1·73	20·00					24	+ 22·16	39	+ 19·71				
								25	+ 19·28	40, &c.	+ 18·70				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·153; from November 4, + 0″·205.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − 0″·711 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 10′. 10″·73.

1, &c. Tremulous. A correction of − 0″·06 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.
31, 32. The microscopes were read by W and H C.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov. 7	1	Nemausa	C	1·588	·020	·529	·875	·751	·885	21·053	5	56·06	47. 54. 6·79	30·48	37·6		1. 7·16	86. 26. 31·32
	2	ω Persei	C	4·305	·710	·190	·601	·512	·615	21·180	1	50·53						
	3	ω Persei	C	,,	,,	,,	,,	,,	,,	21·272		50·82	12. 22. 1·32	,,	,,		13·32	50. 53. 36·44
	4	ω Persei	C	,,	,,	,,	,,	,,	,,	21·300	7	50·42						
	5	Groombridge 639	C	2·850	·270	·756	·136	·040	·158	21·538	1	33·75						
	6	Groombridge 639	C	,,	,,	,,	,,	,,	,,	21·644		34·52	12. 40. 44·95	,,	,,		15·67	51. 12. 20·42
	7	Groombridge 639	C	,,	,,	,,	,,	,,	,,	21·680	7	34·39						
	8	τ^2 Arietis	C	4·125	·548	·050	·414	·340	·403	21·547	1	51·63						
	9	τ^2 Arietis	C	,,	,,	,,	,,	,,	,,	21·606		51·20	31. 12. 2·43	,,	,,		36·79	69. 44. 1·02
	10	τ^2 Arietis	C	,,	,,	,,	,,	,,	,,	21·689	7	52·28						
	11	ε Tauri	C	1·884	·310	·810	·166	·050	·167	21·976		46·44	40. 34. 57·17	,,	,,		52·01	79. 7. 10·98
	12	Eurynome	C	1·005	·430	·920	·280	·162	·275	20·220	5	50·39	35. 43. 1·12	30·48	37·6		43·67	74. 15. 1·37
	13	Polaris S.P.	E	3·437	·832	·356	·704	·643	·747	20·739		40·18	−39. 54. 9·09	30·50	40·8	44·0	50·47	−1. 23. 37·76
	14	Arcturus	E	3·100	·498	·977	·335	·242	·367	20·900		21·79	31. 35. 32·52	,,	44·2	46·0	36·88	70. 7. 31·20
Nov. 8	15	⊙ S. L.	E	2·155	·587	·142	·442	·332	·432	20·135	1	2·43	68. 14. 13·16	30·51	45·9	47·0	2. 28·68	106. 31. 43·98
	16	⊙ N. L.	E	0·009	·452	·000	·302	·183	·308	19·955	3	43·52	67. 41. 54·25	,,	,,		2. 24·77	106. 31. 43·79
	17	Jupiter N. L.	E	1·521	·933	·483	·800	·682	·829	20·070	6	16·78	64. 43. 27·51	30·51	45·5	47·5	2. 6·07	103. 17. 13·56
	18	Jupiter S. L.	E	,,	,,	,,	,,	,,	,,	21·332	7	59·53	64. 44. 10·26	,,	,,		2. 6·13	103. 17. 16·57
	19	Groombridge 3834	E	2·656	·014	·558	·902	·826	·984	22·435		48·95	−24. 4. 0·32	,,	,,		26·72	14. 26. 54·76
	20	μ Pegasi R.	E	4·316	·713	·219	·597	·552	·661	20·021	1	10·25	27. 33. 39·02	,,	,,		31·22	66. 5. 32·04
	21	μ Pegasi	E	0·682	·060	·616	·953	·821	·975	21·915	5	29·27	27. 33. 40·00	,,	,,			66. 5. 33·02
	22	Fomalhaut	E	3·519	·882	·466	·788	·702	·812	21·713		17·68	81. 41. 28·41	,,	44·3		6. 31·09	120. 19. 21·30
	23	α Ursæ Majoris S.P.	E	0·298	·676	·277	·595	·455	·642	22·200		17·66	−66. 1. 31·61	,,	,,		2. 14·11	−27. 32. 23·92
	24	o Cephei R.	E	3·206	·567	·100	·438	·362	·517	19·185	1	30·14	−15. 54. 40·87	,,	,,		17·10	22. 36. 23·83
	25	o Cephei	E	3·832	·196	·752	·105	·022	·172	19·117		7·61	−15. 54. 41·06	,,	,,			22. 36. 23·04
	26	Wire (Nadir Obs.) R.	E	2·653	·055	·587	·922	·826	·981	20·660		48·50	....					....
	27	γ Cephei	E	2·955	·336	·856	·201	·146	·278	20·437		58·44	−25. 24. 50·83	,,	43·2		28·56	13. 6. 2·41
	28	21 Piscium	E	4·636	·029	·582	·897	·833	·923	20·275		36·31	51. 6. 47·04	,,	,,		1. 14·42	89. 39. 23·26
	29	γ Ursæ Majoris S.P.	E	0·630	·992	·596	·930	·786	·972	20·342		34·17	−74. 2. 15·10	,,	,,		3. 27·29	−35. 34. 20·59
	30	Groombridge 4163	E	1·114	·493	·128	·387	·314	·452	20·466		8·53	−22. 11. 40·74	,,	,,		24·53	16. 19. 16·53
	31	29 Piscium	E	0·626	·013	·558	·874	·753	·898	20·765		45·84	55. 12. 56·57	,,	,,		1. 26·35	93. 45. 44·72
	32	☽ S. L.	E	1·253	·642	·194	·514	·389	·531	21·560	1	46·66						
	33	☽ S. L.	E	,,	,,	,,	,,	,,	,,	21·502	2	46·50						
	34	☽ S. L.	E	,,	,,	,,	,,	,,	,,	21·446	3	46·40						
	35	☽ S. L.	E	,,	,,	,,	,,	,,	,,	21·388	4	46·23	52. 13. 57·21	30·51	43·2	45·5	1. 17·46	89. 45. 50·56
	36	☽ S. L.	E	,,	,,	,,	,,	,,	,,	21·346	5	46·61						
	37	☽ S. L.	E	,,	,,	,,	,,	,,	,,	21·290	6	46·50						
	38	☽ S. L.	E	,,	,,	,,	,,	,,	,,	21·236	7	46·46						
	39	α Cassiopeiæ	E	3·267	·623	·160	·496	·432	·577	19·348	6	38·28	− 4. 20. 10·99	,,	,,		4·56	34. 11. 6·25
	40	21 Cassiopeiæ	E	1·363	·756	·316	·647	·567	·709	19·458		48·76	−22. 47. 0·51	,,	,,		25·25	15. 43. 56·04
	41	δ Piscium	E	4·596	·966	·498	·828	·728	·878	18·407	1	30·12	44. 35. 40·85	,,	,,		59·21	83. 8. 1·86

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
1	+ 0·07	4·43						2, &c.	+ 8·59	22	+ 12·04	39	+ 26·52		
12	+ 0·07	5·22						5, &c.	+ 7·78	23	− 29·38	40	+ 26·24		
15	+ 0·17	8·36	16. 11·30					8, &c.	+ 8·05	24, 25	+ 33·79	41	+ 19·52		
16		8·33						11	+ 7·65	27	+ 32·29				
17, 18	− 0·01	1·72	19·90					13	+ 21·09	28	+ 20·66				
32, &c.	− 2·54	45. 7·14	15. 38·69					14	− 5·44	29	− 21·04				
								19	+ 36·12	30	+ 31·23				
								20, 21	+ 28·92	31	+ 19·16				

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

15, 16. The microscopes were read by W and H.C.

24, 25. A close unequal double star; observed the larger.

32, &c. A correction of −0″·08 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov. 8	1	Piazzi 0. 216	E	0·119	·513	·073	·375	·260	·426	17·042	1	9·77	48. 5. 20·50	30·51	43·2		1. 6·89	86. 37. 49·19
	2	Neptune	E	4·503	·879	·410	·732	·654	·786	16·325	1	12·79	47. 54. 23·52	,,	,,		1. 6·46	86. 26. 51·55
	3	B. F. 92	E	4·929	·287	·832	·193	·098	·215	18·529	5	52·65	25. 11. 3·38	,,	42·3		28·32	63. 42. 53·50
	4	ϵ Piscium	E	0·214	·582	·118	·434	·322	·476	19·764		45·41	44. 16. 56·14	,,	,,		58·68	82. 49. 16·62
	5	44 Andromedæ	E	3·779	·185	·694	·048	·996	·113	19·836		29·56	10. 5. 40·29	,,	,,		10·72	48. 37. 12·81
	6	ϕ Piscium	E	2·897	·275	·824	·142	·046	·163	20·398		52·88	27. 35. 3·61	,,	,,		31·46	66. 6. 56·87
	7	Polaris	E	0·887	·287	·816	·144	·057	·203	20·362		50·19	−37. 6. 59·08	,,	,,		45·55	1. 23. 37·17
	8	B. A. C. 516	E	1·565	·953	·492	·821	·738	·856	20·253		27·19	16. 53. 37·92	30·51	41·7	44·5	18·32	55. 25. 18·04
	9	Piazzi I. 170	E	3·326	·705	·214	·556	·512	·636	20·782		32·86	14. 10. 43·59	,,	,,		15·23	52. 42. 20·62
	10	1 Arietis	E	2·628	·999	·546	·876	·762	·894	22·432		46·13	29. 50. 56·86	,,	,,		34·60	68. 22. 53·26
	11	55 Andromedæ	E	0·566	·962	·486	·836	·718	·878	22·336		37·77	11. 23. 48·50	,,	,,		12·16	49. 55. 22·46
	12	Leto	E	0·080	·469	·976	·312	·186	·338	21·189	6	25·27	41. 57. 36·00	,,	,,		54·18	80. 29. 47·84
	13	κ Arietis	E	4·077	·443	·988	·333	·250	·364	21·733		51·21	29. 27. 1·94	,,	,,		34·04	67. 58. 57·78
	14	b Andromedæ	E	2·614	·006	·518	·862	·786	·905	15·242	1	41·04	7. 51. 51·77	,,	,,		8·33	46. 23. 21·90
	15	66 Ceti	E	1·790	·196	·740	·053	·904	·064	18·812	5	49·31	54. 28. 0·04	,,	41·3		1. 24·33	93. 0. 46·17
	16	Nemausa	E	2·684	·049	·599	·910	·830	·976	22·357	6	45·73	48. 0. 56·46	30·51	40·8		1. 7·05	86. 33. 20·88
	17	α Ceti	E	1·502	·886	·409	·731	·598	·770	19·986		12·30	47. 53. 23·03	,,	,,		1. 6·76	86. 25. 51·59
	18	Eurynome	E	2·848	·206	·737	·082	·947	·096	19·824	5	27·53	35. 49. 38·26	30·50	40·3	44·5	43·63	74. 21. 38·45
Nov. 9	19	Wire (Nadir Obs.) R.	D	4·650	·030	·568	·875	·844	·949	17·191		50·26	....					....
Nov. 10	20	☽ S. L.	JC	0·816	·193	·725	·019	·926	·068	16·321	6	26·86	43. 25. 37·00	30·37	45·5	47·0	56·32	81. 1. 28·14
	21	☽ S. L.	JC	,,	,,	,,	,,	,,	,,	16·235	7	25·68						
Nov. 11	22	☉ S. L.	C	3·582	·987	·548	·849	·767	·870	19·646	1	12·01	69. 5. 22·74	30·25	47·4	48·0	2. 33·45	107. 22. 57·58
	23	☉ N. L.	C	1·199	·620	·165	·459	·358	·470	19·998		55·71	68. 33. 6·44	,,	,,		2. 29·30	107. 23. 1·16
	24	Bradley 2854....R.	C	2·050	·417	·968	·289	·190	·336	20·284	2	57·36	−19. 14. 8·91	30·19	42·8		20·78	19. 16. 52·11
	25	Bradley 2854	C	4·444	·808	·316	·704	·641	·773	18·999		39·84	−19. 14. 9·43	,,	,,			19. 16. 51·59
	26	16 Pegasi.....R.	C	3·989	·371	·890	·226	·203	·296	18·944	1	11·18	26. 9. 38·09	,,	,,		29·24	64. 41. 29·13
	27	16 Pegasi	C	2·716	·114	·636	·980	·885	·982	19·970	5	26·61	26. 9. 37·34	,,	,,			64. 41. 28·38
	28	Wire (Nadir Obs.)R.	C	2·814	·216	·712	·040	·984	·105	20·439		49·18	....					....
	29	Radcliffe 2705 S.P.	C	3·781	·171	·724	·037	·978	·069	18·707		50·02	−42. 9. 59·25	30·18	41·4		54·02	−3. 39. 31·47
	30	γ Cephei	C	3·571	·940	·470	·815	·786	·879	19·344		57·96	−25. 24. 51·31	,,	,,		28·36	13. 6. 2·13
	31	Groombridge 4163	C	1·447	·845	·378	·698	·656	·763	19·830		5·79	−22. 11. 43·48	,,	,,		24·35	16. 19. 13·97
	32	Radcliffe 56	C	4·101	·486	·987	·320	·294	·365	20·690		16·93	−37. 13. 32·34	30·18	41·0		45·36	1. 17. 4·10
	33	B. F. 34	C	4·370	·791	·277	·640	·580	·670	21·174		51·17	18. 37. 1·90	,,	,,		20·12	57. 8. 43·82
	34	21 Cassiopeiæ	C	0·721	·102	·637	·960	·920	·030	20·570		46·28	−22. 47. 2·99	,,	,,		25·09	15. 43. 53·72
	35	Piazzi 0. 216	C	3·000	·400	·915	·231	·137	·254	20·675	2	9·56	48. 5. 20·29	,,	,,		1. 6·47	86. 37. 48·56
	36	Neptune	C	0·243	·670	·183	·410	·400	·451	17·749	5	37·26	47. 55. 47·99	,,	41·0		1. 6·10	86. 28. 15·66
	37	Polaris	C	0·287	·680	·200	·531	·451	·580	21·423		49·30	−37. 6. 59·97	,,	40·5		45·23	1. 23. 36·60
	38	ξ^2 Ceti	C	3·440	·849	·341	·689	·610	·696	20·549		31·21	43. 35. 41·94	30·16	39·2		57·00	82. 8. 0·74
	39	14 Trianguli	C	2·264	·669	·187	·534	·471	·564	21·051	5	37·36	15. 54. 48·09	,,	,,		17·08	54. 26. 26·97

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
2	+ 0·01	0·23						1	+ 18·51	10	+ 17·23	29	− 32·50	38	+ 12·73
12		4·14						3	+ 22·26	11	+ 18·03	30	+ 32·95	39	+ 13·92
16	+ 0·07	4·43						4	+ 18·77	13	+ 15·70	31	+ 31·96		
18	+ 0·07	5·24						5	+ 22·67	14	+ 15·80	32	+ 28·90		
20, 21	− 2·42	40. 20·74	16. 6·15					6	+ 20·58	15	+ 12·91	33	+ 25·58		
22	+ 0·16	8·41	16. 12·00					7	+ 21·29	17	+ 9·90	34	+ 27·10		
23		8·38						8	+ 18·98	24, 25	+ 37·37	35	+ 18·39		
36	0·00	0·23						9	+ 18·44	26, 27	+ 30·19	37	+ 22·29		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″, = + 0″·205; from November 11, + 0″·007.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·711 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 10′. 10″·73.

10. A close double star; observed the larger.
12. Very faint. The cross-wires of microscope C fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head.
20, 21. A correction of −0″·09 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian. 22, 23. The microscopes were read by W and H C.
29 to 32, and 34 to 36. The microscopes were read by G K. 32. Faint; cloudy. 35, 36. Very faint; cloudy.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov.16	1	Wire (Nadir Obs.) R.	K	1·044	·428	·975	·268	·189	·325	26·575		32·46	....					....
	2	ϕ Piscium	K	4·153	·521	·188	·382	·329	·431	21·181		37·65	27. 35. 5·04	29·64	42·1		30·58	66. 6. 57·42
	3	40 Cassiopeiæ	K	0·210	·574	·142	·452	·379	·516	22·852		33·65	−20. 52. 58·96	29·65	42·1		23·34	17. 37. 59·50
	4	o Piscium	K	2·672	·031	·570	·869	·781	·895	20·645		45·49	42. 58. 12·88	,,	,,		54·50	81. 30. 29·18
	5	46 Cassiopeiæ	K	1·301	·642	·218	·528	·441	·590	20·541		19·65	−16. 33. 12·96	,,	,,		17·40	21. 57. 51·44
	6	50 Cassiopeiæ	K	2·648	·005	·552	·877	·820	·946	18·756	5	40·50	−20. 17. 52·11	29·66	42·1		21·67	18. 13. 8·02
	7	γ Andromedæ	K	1·672	·042	·572	·908	·831	·947	19·859		18·69	9. 46. 46·08	,,	,,		10·10	48. 18. 17·98
	8	6 Trianguli	K	2·014	·377	·933	·246	·134	·262	20·151		49·66	21. 47. 17·05	,,	,,		23·41	60. 19. 2·26
	9	γ Trianguli	K	3·470	·858	·421	·722	·669	·745	20·872	5	44·58	18. 14. 11·97	,,	,,		19·30	56. 45. 53·07
	10	14 Trianguli	K	3·592	·961	·514	·821	·805	·875	21·671		19·77	15. 54. 47·16	29·67	41·5		16·73	54. 26. 25·69
	11	21 Persei	K	3·076	·454	·010	·309	·240	·350	21·705		49·26	20. 4. 16·65	29·68	41·6		21·44	58. 35. 59·89
	12	Piazzi III. 5	K	1·986	·384	·916	·229	·154	·270	21·481		34·74	9. 28. 2·13	,,	41·3		9·79	47. 59. 33·72
Nov.18	13	Wire (Nadir Obs.) R.	P	2·323	·741	·239	·548	·498	·621	24·297		32·78	....					....
Nov.19	14	α Andromedæ ...R.	K	1·572	·021	·519	·851	·825	·916	23·052	2	7·31	23. 6. 25·30	30·22	42·3		25·45	61. 38. 12·55
	15	α Andromedæ	K	1·226	·618	·148	·478	·382	·474	20·031	7	56·34	23. 6. 23·73	,,	,,			61. 38. 10·98
	16	Bradley 6.....R.	K	2·940	·332	·862	·169	·072	·179	21·729		41·14	−24. 44. 8·53	,,	,,		27·48	13. 46. 45·79
	17	Bradley 6.....	K	2·122	·511	·014	·342	·316	·419	26·196	6	25·86	−24. 44. 6·75	,,	,,			13. 46. 47·57
	18	Wire (Nadir Obs.) R.	K	3·545	·968	·451	·784	·762	·832	22·107		32·36	....					....
	19	23 Cassiopeiæ	K	1·302	·722	·228	·559	·527	·630	19·702		53·02	−22. 38. 39·59	30·22	41·8		24·91	15. 52. 17·30
	20	Neptune.....	K	3·709	·132	·642	·939	·888	·980	20·486		46·01	47. 59. 13·40	,,	,,		1. 6·21	86. 31. 41·18
	21	Groombridge 215 ..	K	2·930	·340	·870	·181	·168	·247	21·726		42·53	−22. 10. 50·08	,,	41·7		24·35	16. 20. 7·37
	22	44 Andromedæ	K	4·460	·871	·355	·702	·678	·750	21·605		10·81	10. 5. 38·20	,,	,,		10·63	48. 37. 10·63
	23	Polaris	K	1·502	·899	·428	·744	·681	·797	22·180		30·14	−37. 7. 2·47	,,	,,		45·18	1. 23. 34·15
	24	40 Cassiopeiæ	K	0·998	·412	·930	·265	·209	·328	21·382		32·55	−20. 53. 0·06	,,	,,		22·79	17. 37. 58·95
	25	o Piscium	K	3·809	·210	·718	·032	·005	·070	18·565	5	44·65	42. 58. 12·04	30·23	41·3		55·66	81. 30. 29·50
	26	Piazzi I. 170	K	4·222	·649	·136	·469	·477	·529	22·080		13·71	14. 10. 41·10	,,	,,		15·11	52. 42. 18·01
	27	ϵ Trianguli.....	K	3·918	·335	·841	·162	·131	·193	20·569		2·25	18. 49. 29·64	,,	41·5		20·38	57. 21. 11·82
	28	58 Andromedæ	K	4·098	·507	·000	·337	·310	·373	20·269	5	1·81	14. 14. 29·20	,,	,,		15·17	52. 46. 6·17
	29	6 Trianguli	K	1·760	·181	·700	·032	·942	·049	20·529		49·43	21. 47. 16·82	,,	,,		23·89	60. 19. 2·51
	30	γ Trianguli	K	3·543	·961	·468	·798	·781	·826	20·691		43·99	18. 14. 11·38	30·23	41·1		19·71	56. 45. 52·89
	31	Piazzi II. 61	K	0·509	·908	·394	·752	·671	·770	20·111	5	15·70	10. 40. 43·09	,,	,,		11·28	49. 12. 16·17
	32	ν Ceti	K	0·122	·538	·040	·365	·268	·382	22·502		15·47	46. 26. 42·86	,,	,,		1. 2·85	84. 59. 7·50
	33	ν Arietis	K	4·198	·604	·116	·436	·391	·459	20·559		17·91	30. 4. 45·30	,,	,,		34·64	68. 36. 41·74
	34	21 Persei	K	3·567	·995	·516	·842	·809	·873	20·769		49·22	20. 4. 16·61	,,	40·9		21·87	58. 36. 0·28
	35	ω Persei	K	1·186	·602	·100	·442	·365	·471	21·101		32·96	12. 22. 0·35	,,	,,		13·12	50. 53. 35·27
	36	Piazzi III. 5	K	1·532	·951	·444	·780	·722	·816	22·290		35·19	9. 28. 2·58	,,	,,		9·98	47. 59. 34·36
	37	Groombridge 639 ..	K	0·352	·770	·270	·611	·539	·636	20·360		16·49	12. 40. 43·88	30·24	40·6		13·48	51. 12. 19·16
	38	Piazzi III. 23	K	4·272	·681	·221	·538	·511	·581	19·298	5	40·46	17. 44. 7·85	,,	,,		19·16	56. 15. 48·81
	39	σ Persei	K	1·072	·475	·992	·319	·281	·365	29·019	5	58·79	3. 56. 26·18	,,	,,		4·13	42. 27. 52·11
	40	ϵ Tauri	K	4·152	·545	·065	·399	·340	·414	21·008		30·77	40. 34. 58·16	,,	,,		51·28	79. 7. 11·24

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	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
20		0·23						2	+ 21·12	11	+ 11·53	25	+ 15·90	34	+ 11·84
								3	+ 22·54	12	+ 9·52	26	+ 19·99	35	+ 10·44
								4	+ 15·99	14, 15	+ 26·74	27	+ 17·95	36	+ 10·02
								5	+ 20·31	16, 17	+ 31·93	28	+ 17·81	37	+ 9·59
								6	+ 19·41	19	+ 29·04	29	+ 16·58	38	+ 9·29
								7	+ 18·26	21	+ 27·32	30	+ 16·45	39	+ 7·95
								8	+ 16·31	22	+ 24·32	31	+ 16·38	40	+ 7·36
								9	+ 16·11	23	+ 24·89	32	+ 11·49		
								10	+ 14·60	24	+ 23·40	33	+ 13·08		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of $5'$.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

8. The first star observed.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov. 19	1	Piazzi III. 104	K	2·712	·122	·637	·960	·899	·992	22·501		54·79	14. 19. 22·18	30·24	40·5		15·30	52. 50. 59·28
	2	*o* Persei	K	4·254	·689	·209	·523	·503	·570	22·645		36·03	17. 56. 3·42	,,	,,		19·39	56. 27. 44·61
	3	*n* Persei	K	1·026	·472	·968	·304	·231	·320	21·936		53·40	18. 47. 20·79	30·24	40·4	41·0	20·38	57. 19. 2·97
	4	ξ Persei	K	2·662	·071	·575	·909	·877	·938	21·781		27·08	16. 3. 54·47	,,	,,		17·26	54. 35. 33·53
	5	*o* Geminorum	D	4·338	·739	·258	·583	·577	·627	21·540		1·69	16. 35. 29·08	30·24	39·2		17·90	55. 7. 8·78
	6	Bradley 1104.....	D	3·349	·744	·258	·568	·541	·612	21·328		52·27	0. 44. 19·66	,,	,,		0·77	39. 15. 42·23
	7	ζ Leonis	E	1·754	·148	·694	·022	·907	·010	22·274		47·48	30. 13. 14·87	30·26	36·6	41·0	35·20	68. 45. 11·87
	8	☽ S. L.	E	0·477	·897	·416	·726	·606	·767	20·220	1	28·56						
	9	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·253	2	26·44						
	10	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·418	3	28·93						
	11	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·484	4	27·99	47. 0. 55·76	,,	,,		1. 4·78	84. 35. 30·40
	12	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·577	5	28·01						
	13	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·701	6	29·11						
	14	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·805	7	29·55						
Nov. 20	15	Wire (Nadir Obs.) R.	E	4·436	·851	·329	·670	·657	·736	20·517		32·70	....					....
Nov. 21	16	Jupiter N. L.	D	1·728	·145	·653	·948	·871	·969	19·798	1	21·75	64. 21. 48·44	30·43	39·4	41·3	2. 5·32	102. 55. 32·82
	17	Jupiter S. L.	D	,,	,,	,,	,,	,,	,,	20·936	2	0·47	64. 22. 27·16	,,	,,		2. 5·37	102. 55. 33·79
	18	28 Cephei	D	3·672	·088	·608	·899	·915	·987	25·423		35·75	−26. 37. 57·56	,,	,,		30·30	11. 52. 53·94
	19	ρ Cephei.....	D	,,	,,	,,	,,	,,	,,	21·905		34·29	−26. 39. 59·02	,,	,,		30·35	11. 50. 52·43
	20	31 Cephei	D	0·680	·114	·622	·949	·920	·021	20·569		45·83	−21. 28. 47·48	,,	39·3		23·79	17. 2. 10·53
	21	Fomalhaut	D	1·032	·448	·971	·302	·235	·323	20·438		1·85	81. 41. 28·54	,,	39·2		6. 34·47	120. 19. 24·81
	22	α Ursæ Majoris S.P.	D	3·133	·537	·097	·411	·351	·438	20·129		0·33	−66. 1. 32·98	,,	,,		2. 15·19	−27. 32. 26·37
	23	π Cephei.....	D	3·028	·424	·956	·260	·273	·346	20·097		52·39	−23. 11. 40·92	,,	,,		25·90	15. 19. 14·98
	24	γ Piscium.....	D	3·002	·421	·932	·222	·191	·264	20·929		18·34	48. 53. 45·03	,,	,,		1. 9·20	87. 26. 16·03
	25	*o* Cephei	D	4·387	·783	·311	·633	·640	·711	21·082		50·31	−15. 54. 43·00	,,	,,		17·24	22. 36. 21·56
	26	κ Piscium.....	D	4·461	·885	·415	·716	·681	·728	21·151		56·44	50. 55. 23·13	,,	39·1		1. 14·36	89. 27. 59·29
	27	γ Cephei .....R.	D	2·800	·205	·742	·037	·966	·069	23·203	3	25·24	−25. 24. 51·93	,,	,,		28·73	13. 6. 1·14
	28	γ Cephei	D	3·432	·825	·350	·651	·659	·742	22·543		40·83	−25. 24. 52·48	,,	,,			13. 6. 0·59
	29	Wire (Nadir Obs.) R.	D	4·556	·972	·478	·802	·794	·851	20·322		33·90	....					....
	30	α Andromedæ ...R.	D	2·107	·531	·040	·362	·345	·437	22·158	3	8·08	23. 6. 25·23	,,	38·9		25·81	61. 38. 12·84
	31	α Andromedæ	D	0·552	·972	·493	·823	·731	·838	21·210	7	57·24	23. 6. 23·93	,,	,,			61. 38. 11·54
	32	Bradley 24.....	D	3·658	·055	·580	·888	·879	·973	21·443		17·02	−27. 50. 16·29	,,	,,		31·94	10. 40. 33·57
	33	28 Andromedæ	D	1·180	·597	·130	·452	·361	·476	20·619	5	16·64	22. 26. 43·33	,,	,,		24·99	60. 58. 30·12
	34	κ Draconis S.P. ...	D	0·591	·002	·563	·868	·806	·900	20·518		38·10	−57. 58. 55·21	30·44	38·8		1. 36·53	−19. 29. 9·94
	35	β Ceti	D	2·699	·121	·648	·961	·883	·980	21·340		14·52	70. 8. 41·21	,,	,,		2. 46·18	108. 42. 49·19
	36	Piazzi 0. 216	D	4·610	·026	·538	·831	·812	·890	20·863		55·09	48. 5. 21·78	,,	,,		1. 7·35	86. 37. 50·93
	37	Neptune	D	4·220	·633	·138	·451	·422	·500	20·910	5	32·06	47. 59. 58·75	,,	,,		1. 7·14	86. 32. 27·46
	38	33 Ceti	D	2·360	·789	·296	·586	·532	·629	20·680		30·48	49. 42. 57·17	,,	,,		1. 11·31	88. 15. 30·28
	39	Polaris	D	2·760	·172	·693	·993	·971	·051	19·942		30·76	−37. 7. 2·55	,,	38·6		45·80	1. 23. 33·45
	40	Bradley 166	D	1·409	·819	·329	·638	·624	·728	20·770		35·75	−26. 32. 57·56	,,	,,		30·25	11. 57. 53·99

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
8, &c.	+ 2·49	42. 5·30	15. 46·72					1	+ 6·67	19	+ 37·67	27, 28	+ 34·95	39	+ 25·49
16, 17	− 0·02	1·64	18·90					2	+ 6·49	20	+ 37·57	30, 31	+ 26·80	40	+ 25·80
37		0·23						3	+ 5·59	21	+ 10·65	32	+ 31·47		
								4	+ 4·37	22	− 32·33	33	+ 25·65		
								5	− 19·82	23	+ 36·53	34	− 27·86		
								6	− 23·95	24	+ 21·64	35	+ 12·30		
								7	− 19·59	25	+ 35·86	36	+ 17·88		
								18	+ 37·70	26	+ 20·60	38	+ 16·59		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + 0″·007; from November 20, + 0″·291.
Correction for Telescope-Micrometer = Micrometer Reading, × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)′.
Correction for inclination of wire = − 0″·711 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 5′. 27″·39; from November 20, + 8′. 26″·69.

8, &c. A correction of + 0″·08 has been applied to the Geocentric N.P.D. of center to reduce to the true Meridian.

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DAY	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov.27	1	Arcturus	P	3·837	·321	·770	·104	·060	·107	22·677		10·62	31. 35. 37·31	30·27	33·1		37·46	70. 7. 36·57
	2	ρ Boötis	P	0·733	·203	·684	·047	·007	·033	20·017		30·94	20. 30. 57·63	,,	33·4		22·78	59. 2. 42·21
	3	ε Boötis	P	4·166	·613	·101	·451	·411	·440	21·240	5	41·34	23. 50. 8·03	,,	34·3		26·84	62. 21. 56·67
	4	β Ursæ Minoris	P	1·607	·089	·562	·878	·883	·960	20·851		53·18	−23. 12. 40·13	,,	,,		26·05	15. 18. 15·62
	5	γ^2 Ursæ Minoris	P	4·803	·270	·756	·099	·141	·173	21·036		16·41	−20. 49. 16·90	30·28	35·2		23·07	17. 41. 41·83
	6	α Coronæ	P	2·293	·771	·248	·594	·497	·582	21·479	5	55·23	24. 18. 21·92	,,	,,		27·40	62. 50. 11·12
	7	α Serpentis	P	1·556	·040	·483	·812	·747	·830	20·217	5	25·27	44. 36. 51·96	,,	,,		59·80	83. 9. 13·56
Nov.28	8	⊙ N. L.	P	1·768	·256	·769	·089	·016	·080	19·627	2	22·19	72. 26. 48·88	30·27	36·9	39·0	3. 8·92	111. 17. 26·28
	9	⊙ S. L.	P	3·985	·490	·998	·302	·272	·309	19·783		42·70	72. 59. 9·39	,,	,,		3. 15·15	111. 17. 22·40
	10	η Draconis	P	4·578	·042	·540	·872	·922	·940	19·895		23·21	−10. 20. 10·10	,,	,,		11·02	28. 11. 0·68
	11	ζ Herculis	P	1·877	·371	·824	·192	·150	·206	20·562	5	59·46	19. 37. 26·15	,,	,,		21·55	58. 9. 8·50
	12	η Herculis	P	2·037	·535	·996	·327	·294	·356	20·769	5	15·80	12. 17. 42·49	30·28	37·9		13·15	50. 49. 17·44
	13	ζ Draconis	P	0·195	·650	·131	·482	·454	·516	21·120	5	34·95	−14. 23. 58·36	30·27	38·3		15·47	24. 7. 7·97
	14	Venus N. L.	P	0·227	·703	·209	·525	·466	·527	21·357		45·52	75. 21. 12·21	,,	39·0		3. 46·50	113. 56. 20·29
	15	Venus S. L.	P	,,	,,	,,	,,	,,	,,	21·730	6	56·66	75. 21. 23·35	,,	,,		3. 46·54	113. 56. 21·27
	16	α Ophiuchi	P	2·769	·250	·698	·156	·013	·041	20·169		40·35	38. 48. 7·04	,,	,,		48·35	77. 20. 17·19
	17	β Ophiuchi	P	4·761	·254	·742	·053	·030	·080	19·707	5	26·14	46. 49. 52·83	,,	,,		1. 4·07	85. 22. 18·70
	18	μ Herculis	P	4·929	·392	·877	·238	·201	·219	19·602		33·14	23. 39. 59·83	,,	,,		26·37	62. 11. 48·00
	19	Wire (Nadir Obs.) R.	P	4·733	·228	·691	·026	·020	·093	19·946		33·90	....					....
	20	79 Draconis R.	P	4·304	·739	·247	·572	·588	·640	22·451	3	33·91	−21. 36. 0·60	30·25	36·6		23·93	16. 54. 57·27
	21	79 Draconis	P	3·249	·730	·227	·572	·575	·620	20·817	5	33·81	−21. 35. 59·50	,,	,,			16. 54. 58·37
	22	ι Pegasi R.	P	2·630	·115	·570	·936	·931	·992	22·128	1	41·64	26. 45. 51·67	,,	,,			65. 17. 43·94
	23	ι Pegasi	P	0·263	·737	·245	·556	·509	·563	20·742	6	25·43	26. 45. 52·12	,,	,,		30·47	65. 17. 44·39
	24	Jupiter N. L.	P	0·800	·270	·779	·077	·015	·093	19·570	1	19·72	64. 5. 46·41	,,	,,		2. 3·84	102. 39. 28·95
	25	Jupiter S. L.	P	,,	,,	,,	,,	,,	,,	20·717		57·47	64. 6. 24·16	,,	,,		2. 3·90	102. 39. 29·76
	26	Piazzi 0. 216	P	4·936	·401	·876	·207	·198	·212	20·335	7	55·78	48. 5. 22·47	30·25	34·2		1. 7·58	86. 37. 51·85
	27	Neptune	P	1·774	·252	·739	·050	·032	·080	20·452	5	48·28	48. 2. 14·97	,,	,,		1. 7·46	86. 34. 44·00
	28	33 Ceti	P	2·748	·231	·697	·006	·978	·002	19·930		29·44	49. 42. 56·13	,,	,,		1. 11·55	88. 15. 23·48
	29	Bradley 137	P	0·931	·359	·867	·175	·192	·260	20·762		7·15	−27. 43. 26·16	,,	,,		31·91	10. 47. 23·73
	30	Bradley 166	P	1·020	·470	·949	·264	·269	·306	21·390		33·79	−26. 32. 59·52	,,	34·4		30·33	11. 57. 51·95
	31	A Cassiopeiæ	P	3·429	·881	·350	·670	·730	·727	20·200		21·29	−18. 6. 12·02	,,	,,		19·85	20. 24. 49·93
	32	τ Andromedæ	P	3·624	·089	·531	·886	·893	·887	20·105		29·13	11. 33. 55·82	30·26	34·3		12·43	50. 5. 30·05
	33	ε Piscium	P	2·567	·035	·500	·821	·801	·838	20·683		44·29	42. 58. 10·98	,,	,,		56·53	81. 30. 29·31
	34	η Ursæ Majoris S.P.	P	1·039	·486	·047	·350	·313	·330	20·943	5	22·55	−78. 28. 10·76	,,	,,		4. 50·19	−40. 1. 39·15
	35	Piazzi II. 61	P	4·695	·130	·604	·972	·967	·020	21·305	5	16·02	10. 40. 42·71	30·25	33·9		11·46	49. 12. 15·97
	36	12 Trianguli	P	2·972	·456	·917	·279	·224	·270	20·522		5·21	22. 23. 31·90	,,	,,		25·04	60. 55. 18·74
	37	Bradley 353	P	0·039	·479	·970	·318	·300	·362	20·752		12·93	−19. 34. 20·38	,,	33·8		21·61	18. 56. 39·81
	38	21 Persei	P	3·508	·977	·461	·785	·780	·846	20·847		49·53	20. 4. 16·22	,,	33·7		22·22	58. 36. 0·24
	39	Bradley 431	P	3·220	·679	·144	·478	·510	·512	21·691		59·51	−25. 45. 33·80	,,	,,		29·34	12. 45. 18·66
	40	Piazzi III. 5	P	1·529	·027	·471	·814	·786	·805	22·174		33·15	9. 27. 59·84	,,	,,		10·14	47. 59. 31·78
	41	Piazzi III. 23	P	2·594	·101	·558	·913	·879	·912	22·162		39·63	17. 44. 6·32	,,	,,		19·45	56. 15. 47·57

No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
8		8·62	16. 15·30					1	− 10·74	11	+ 6·43	26	+ 17·46	35	+ 17·68
9	+ 0·10	8·64						2	− 9·28	12	+ 5·94	28	+ 16·12	36	+ 15·53
14, 15	+ 0·07	5·32	5·10					3	− 7·37	13	+ 9·70	29	+ 28·53	37	+ 17·50
24, 25	− 0·02	1·60	18·50					4	− 12·41	16	+ 11·09	30	+ 27·69	38	+ 12·69
27	0·00	0·23						5	− 7·35	17	+ 11·34	31	+ 26·40	39	+ 12·45
								6	− 1·76	18	+ 12·95	32	+ 22·21	40	+ 11·43
								7	+ 1·23	20, 21	+ 37·86	33	+ 15·57	41	+ 10·26
								10	+ 2·89	22, 23	+ 29·25	34	− 18·53		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of B being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, $4^r \cdot 902$ corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

7. Very faint.

8, 9. The microscopes were read by W and H C.

14, 15. Very faint and tremulous.

15. Computed distance of limb from illuminated edge, 2″. 15′.; correction insensible.

17. Faint.

20, 22. Mercury disturbed by wind.

37. The cross-wires of microscope C fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Corrected Meridional Circle Reading	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Nov. 28	1	Eurynome	P	3·815	·312	·727	·064	·101	·089	19·600	5	23·06	37. 53. 49·75	30·24	33·7		47·28	76. 25. 53·44
	2	Piazzi III. 104	P	4·296	·804	·229	·598	·629	·625	19·580		54·67	14. 19. 21·36	,,	,,		15·52	52. 50. 58·68
	3	ψ Tauri	P	0·359	·829	·319	·659	·609	·681	18·709	5	22·02	22. 49. 48·71	30·24	33·8		25·58	61. 21. 36·09
	4	*p* Tauri	P	0·295	·772	·221	·589	·529	·564	19·558		46·86	25. 20. 13·55	,,	,,		28·77	63. 52. 4·12
	5	*f* Persei	P	4·839	·325	·760	·150	·156	·137	19·335		18·65	11. 19. 45·34	,,	,,		12·18	49. 51. 19·32
	6	Groombridge 804	P	4·430	·901	·350	·720	·721	·720	20·122		19·98	9. 39. 46·67	,,	,,		10·35	48. 11. 18·82
	7	58 Tauri	P	1·329	·817	·250	·601	·564	·578	19·795		57·57	36. 41. 24·26	,,	,,		45·25	75. 13. 31·31
	8	62 Tauri	P	3·619	·120	·580	·910	·918	·920	19·437		10·16	27. 28. 36·85	,,	,,		31·60	66. 0. 30·25
	9	κ^2 Tauri	P	4·300	·749	·228	·586	·563	·580	19·870		2·56	29. 34. 29·25	,,	33·7		34·48	68. 6. 25·53
	10	*b* Tauri	P	2·547	·077	·490	·849	·830	·816	20·042	5	21·83	38. 42. 48·52	,,	,,		48·69	77. 14. 59·01
	11	3 Camelopardali	P	4·642	·099	·544	·887	·920	·965	20·202		34·99	— 1. 19. 58·32	,,	,,		1·41	37. 11. 22·07
	12	12 Aurigæ	P	2·711	·181	·615	·988	·972	·000	20·117		33·82	5. 12. 59·51	30·24	33·6		5·55	43. 44. 26·86
	13	*e* Orionis	P	2·467	·942	·421	·778	·722	·772	20·355	1	29·69	59. 22. 56·38	,,	,,		1. 42·40	97. 56. 0·58
	14	113 Tauri	P	2·950	·431	·873	·240	·199	·222	20·180		50·50	34. 53. 17·19	,,	,,		42·37	73. 25. 21·36
	15	10 Leporis	P	2·369	·821	·322	·652	·580	·650	21·393		56·57	72. 23. 23·26	30·25	33·5		3. 9·53	110. 57. 54·59
	16	n^2 Orionis	P	1·148	·615	·092	·403	·342	·420	21·474		44·36	47. 47. 11·05	,,	,,		1. 6·97	86. 19. 39·82
	17	122 Tauri	P	0·466	·960	·420	·759	·702	·755	20·172	5	17·82	34. 30. 44·51	,,	,,		41·81	73. 2. 48·12
	18	28 Aurigæ	P	2·555	·027	·487	·834	·796	·851	22·969	1	5·96	11. 59. 32·65	,,	,,		12·92	50. 31. 7·37
	19	τ Aurigæ	P	0·272	·757	·214	·572	·522	·590	20·320	5	11·94	12. 20. 38·63	,,	,,		13·31	50. 52. 13·74
	20	υ Aurigæ	P	2·370	·841	·297	·656	·626	·663	20·203	6	15·39	14. 12. 42·08	,,	,,		15·40	52. 44. 19·28
	21	Uranus	P	2·472	·932	·422	·751	·720	·763	19·556		0·10	28. 12. 26·79	30·26	33·0		32·66	66. 44. 21·02
	22	Polaris S. P.	C	0·531	·015	·510	·854	·824	·846	20·372		32·30	—39. 54. 1·01	30·23	32·4	35·0	50·91	— 1. 23. 30·12
	23	Spica	C	3·976	·470	·945	·300	·276	·300	20·894		19·93	61. 54. 46·62	,,	,,		1. 53·73	100. 28. 2·15
	24	ε Boötis	C	3·966	·480	·926	·293	·265	·252	21·512		41·08	23. 50. 7·77	30·24	35·3		26·76	62. 21. 56·33
	25	β Ursæ Minoris	C	1·898	·374	·850	·176	·174	·240	20·364		54·05	—23. 12. 39·26	,,	35·6		25·96	15. 18. 16·58
	26	α Coronæ	C	1·994	·487	·955	·306	·234	·260	21·995		55·83	24. 18. 22·52	,,	37·5		27·23	62. 50. 11·55
	27	α Serpentis	C	1·268	·784	·230	·575	·504	·572	20·697	5	26·16	44. 36. 52·85	,,	,,		59·43	83. 9. 14·08
Nov. 29	28	☉ S. L.	C	3·813	·288	·778	·089	·070	·109	20·773	1	6·59	73. 9. 33·28	30·23	39·4	41·0	3. 15·93	111. 27. 46·96
	29	☉ N. L.	C	3·522	·017	·492	·827	·802	·830	17·224	5	44·20	72. 37. 10·89	,,	,,		3. 9·62	111. 27. 49·08
	30	α Ophiuchi	C	1·410	·944	·353	·734	·677	·700	22·530		39·11	38. 48. 5·80	30·22	41·7	44·0	48·00	77. 20. 15·60
	31	Venus N. L.	C	2·028	·546	·014	·356	·285	·366	20·810	6	16·53	75. 27. 43·22	,,	,,		3. 46·53	114. 2. 51·32
	32	Venus S. L.	C	,,	,,	,,	,,	,,	,,	21·098	6	26·48	75. 27. 53·17	,,	,,		3. 46·57	114. 2. 51·11
	33	γ Draconis	C	2·258	·749	·205	·534	·546	·590	20·890		34·08	— 0. 1. 59·23	30·21	41·9		0·03	38. 29. 22·54
	34	Wire (Nadir Obs.) R.	C	4·434	·911	·376	·726	·728	·764	20·493		33 87	....					....
Nov. 30	35	Wire (Nadir Obs.) R.	JC	3·817	·273	·736	·079	·091	·133	21·597		33·11	....					....
Dec. 1	36	ε Virginis	HC	1·396	·834	·348	·637	·583	·665	21·646		5·06	39. 47. 31·75	29·47	30·0	38·5	49·69	78. 19. 43·24
	37	Polaris S.P.	HC	4·543	·954	·492	·783	·789	·865	21·991		31·55	—39. 54. 1·76	29·48	29·8		49·92	— 1. 23. 29·88
	38	Spica	HC	4·561	·010	·530	·814	·809	·860	19·992		22·63	61. 54. 49·32	,,	,,		1. 51·52	100. 28. 2·64
	39	η Ursæ Majoris	HC	4·818	·236	·747	·050	·065	·119	20·287		47·92	1. 30. 14·61	,,	,,		1·57	40. 1. 37·98

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	"	′ ″	′ ″		"	′ ″	′ ″
1	+ 0·05	5·39					
21		0·23					
28	+ 0·10	8·65	16. 15·40				
29		8·63					
31, 32	+ 0·06	5·33	5·10				

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"		"		"		"
2	+ 7·81	10	+ 1·57	18	— 8·83	27	+ 1·03
3	+ 4·25	11	— 0·30	19	— 8·94	30	+ 10·89
4	+ 3·74	12	— 5·23	20	— 8·94	33	+ 15·95
5	+ 3·33	13	— 2·32	22	+ 27·74	36	— 13·62
6	+ 3·02	14	— 4·16	23	— 5·61	37	+ 28·54
7	+ 2·38	15	— 2·00	24	— 7·67	38	— 6·06
8	+ 2·16	16	— 3·87	25	— 12·78	39	— 19·45
9	+ 1·98	17	— 5·28	26	— 2·06		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″, = + 0″·059.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = − 0″·711 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 8′. 26″·69.

8. The first of two stars observed.
18. The reading of the telescope-micrometer has been decreased 1″.
28, 29. The microscopes were read by P and HC.
32. Computed distance of limb from illuminated edge, 2°. 8′; correction insensible.
36, 37. Very tremulous.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		″	° ′ ″	in.	°	°	′ ″	° ′ ″
Dec. 4	1	α Cassiopeiæ	JC	2·883	·234	·694	·853	·376	·185	22·979		20·30	— 4. 20. 15·43	30·11	33·1		4·60	34. 11. 1·77
	2	Piazzi 0. 216	JC	4·591	·983	·430	·572	·088	·903	20·972		56·70	48. 5. 20·97	30·10	32·3		1. 7·52	86. 37. 50·29
	3	Neptune	JC	,,	,,	,,	,,	,,	,,	18·088		17·13	48. 3. 41·40	,,	,,		1. 7·45	86. 36. 10·42
	4	Polaris	JC	3·393	·737	·234	·354	·886	·683	18·834		29·29	—37. 7. 6·44	30·09	31·8		45·93	1. 23. 29·43
	5	Eurynome	JC	1·276	·659	·107	·264	·725	·566	20·989	5	32·75	38. 21. 57·02	30·05	31·6		48·00	76. 54. 1·51
	6	Piazzi III. 104	JC	3·112	·495	·950	·093	·643	·406	21·862		57·10	14. 19. 21·37	,,	,,		15·49	52. 50. 58·66
	7	ν Persei	JC	3·196	·567	·008	·183	·712	·482	21·117		35·77	9. 19. 0·04	,,	,,		9·95	47. 50. 31·79
	8	Piazzi III. 178	JC	4·456	·819	·284	·437	·983	·763	21·906		20·74	— 9. 14. 14·99	,,	,,		9·87	29. 16. 36·94
	9	A^2 Tauri	JC	2·775	·167	·642	·778	·266	·045	22·091		43·95	29. 49. 8·22	,,	,,		34·76	68. 21. 4·78
	10	Piazzi III. 249	JC	3·389	·786	·242	·394	·898	·675	20·714		33·95	34. 28. 58·22	30·03	31·5		41·63	73. 1. 1·63
	11	*f* Persei	JC	3·973	·340	·808	·966	·503	·272	21·016		20·47	11. 19. 44·74	,,	,,		12·15	49. 51. 18·69
	12	Groombridge 804	JC	3·833	·209	·672	·826	·373	·128	21·292		21·53	9. 39. 45·80	,,	,,		10·32	48. 11. 17·92
	13	*h* Tauri	JC	3·993	·384	·818	·976	·505	·274	21·635		42·50	37. 45. 6·77	,,	,,		46·93	76. 17. 15·50
	14	*r* Tauri	JC	2·897	·286	·740	·883	·374	·167	21·224		21·11	42. 18. 45·38	,,	,,		55·15	80. 51. 2·33
Dec. 5	15	☉ S. L.	P	3·318	·680	·191	·313	·818	·610	19·900		1·58	74. 3. 25·85	29·77	41·2	39·0	3. 23·37	112. 21. 46·55
	16	Wire (Nadir Obs.) R.	P	3·852	·225	·691	·831	·371	·170	21·667		35·58	....					....
	17	47 Cephei	P	4·742	·053	·580	·712	·256	·083	21·121		10·54	—27. 24. 25·19	29·61	36·4		30·68	11. 6. 25·93
	18	δ Persei	P	1·135	·487	·970	·120	·642	·453	21·041		27·04	4. 6. 51·31	29·61	36·2		4·26	42. 38. 17·37
	19	η Tauri	P	1·030	·370	·897	·010	·522	·325	20·692	5	7·86	27. 46. 32·13	,,	,,		31·18	66. 18. 25·11
	20	Groombridge 779	P	3·462	·791	·289	·404	·977	·752	20·975		46·43	—29. 0. 49·30	29·59	36·0		32·82	9. 29. 59·68
	21	Piazzi IV. 31	P	3·892	·222	·685	·845	·391	·170	20·623		0·13	9. 59. 24·40	,,	,,		10·43	48. 30. 56·65
	22	χ Tauri	P	3·682	·027	·536	·677	·202	·956	20·865		57·07	26. 9. 21·34	,,	,,		29·06	64. 41. 12·20
	23	κ^2 Tauri	P	3·982	·330	·826	·960	·472	·258	20·571		4·47	29. 34. 28·74	,,	,,		33·58	68. 6. 24·12
	24	θ^1 Tauri	P	2·440	·815	·277	·422	·896	·720	20·833		38·88	35. 48. 3·15	,,	35·5		42·71	74. 20. 7·66
	25	*e* Persei	P	3·402	·762	·240	·402	·916	·701	20·992		44·48	10. 29. 8·75	,,	,,		10·97	49. 0. 41·52
	26	Bradley 635	P	4·552	·890	·403	·544	·027	·830	21·284		3·71	55. 20. 27·98	,,	,,		1. 25·50	93. 53. 15·28
	27	4 Camelopardali	P	1·814	·177	·659	·798	·304	·133	21·342		19·11	— 5. 2. 16·62	,,	,,		5·22	33. 28. 59·96
	28	Piazzi IV. 179	P	3·230	·593	·083	·222	·712	·502	20·245		7·15	32. 58. 31·42	,,	,,		38·43	71. 30. 31·65
	29	5 Camelopardali	P	1·151	·474	·964	·103	·612	·441	20·588		10·88	— 3. 33. 24·85	,,	,,		3·68	34. 57. 53·27
	30	π^4 Orionis	P	1·281	·652	·101	·239	·717	·550	20·373		11·61	41. 31. 35·88	29·58	35·0		52·46	80. 3. 50·14
	31	5 Aurigæ	P	1·732	·142	·595	·795	·252	·083	20·303	5	39·83	12. 17. 4·10	,,	,,		12·91	50. 48. 38·81
	32	η Aurigæ	P	0·550	·895	·377	·533	·040	·849	19·615		1·64	10. 25. 25·91	,,	,,		10·91	48. 56. 58·62
	33	μ Aurigæ	P	4·151	·491	·952	·135	·642	·417	19·565		39·78	13. 9. 4·05	,,	,,		13·85	51. 40. 39·70
	34	108 Tauri	P	5·083	·428	·932	·094	·572	·376	20·052		54·49	29. 20. 18·76	29·57	34·7		33·33	67. 52. 13·89
	35	Niobe	P	5·070	·414	·899	·052	·562	·372	21·702	6	49·34	— 0. 13. 46·39	,,	,,		0·22	38. 17. 35·19
	36	Bradley 774	P	2·209	·573	·055	·194	·645	·481	21·935		2·52	35. 8. 26·79	,,	,,		41·73	73. 40. 30·32
	37	n^2 Orionis	P	1·800	·177	·649	·783	·248	·092	20·525		49·60	47. 47. 13·87	,,	,,		1. 5·30	86. 19. 40·97
	38	122 Tauri	P	0·445	·812	·287	·433	·876	·709	20·362		19·95	34. 30. 44·22	29·56	34·8		40·74	73. 2. 46·76
	39	128 Tauri	P	1·304	·666	·131	·304	·734	·555	20·187		6·41	35. 26. 30·68	,,	,,		42·17	73. 58. 34·65
	40	γ Leporis	P	4·552	·937	·424	·562	·051	·872	20·362		33·75	73. 54. 58·02	,,	,,		3. 22·86	112. 29. 42·68
	41	Piazzi VI. 126	P	4·945	·283	·777	·927	·482	·252	21·073	5	21·23	18. 55. 45·50	29·57	35·0		20·33	57. 27. 27·63

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″	′ ″	′ ″		″	′ ″	′ ″		″		″		″		″
3		0·23						1	+ 30·92	12	+ 3·88	23	+ 2·10	32	— 2·59
5	— 0·01	5·31						2	+ 17·07	13	+ 2·27	24	+ 1·45	33	— 3·54
15		8·70	16. 15·77					4	+ 29·19	14	+ 1·59	25	+ 1·44	34	— 3·41
35	+ 0·03	0·22						6	+ 8·52	17	+ 16·87	26	— 0·20	36	— 4·60
								7	+ 8·34	18	+ 9·11	27	— 0·17	37	— 4·68
								8	+ 7·67	19	+ 6·47	28	— 0·38	38	— 5·53
								9	+ 4·20	20	+ 5·01	29	— 1·19	39	— 6·17
								10	+ 3·70	21	+ 3·70	30	— 1·48	40	— 4·51
								11	+ 4·12	22	+ 2·63	31	— 1·80	41	— 12·75

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of E being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4ʳ·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

15. Very cloudy. The microscopes were read by W and H C. A correction of −0″·53 has been applied to the N.A. Semidiameter.

29. Very cloudy.

30. Very tremulous.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D of Center
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Dec. 5	1	Groombridge 1190 .	P	4·999	·370	·838	·990	·525	·317	20·855		17·90	12. 55. 42·17	29·57	35·0		13·61	51. 27. 17·58
	2	25 Geminorum	P	3·662	·021	·537	·674	·189	·982	21·083	5	4·05	23. 9. 28·32	,,	,,		25·35	61. 41. 15·47
Dec. 6	3	Jupiter N. L.	E	0·513	·883	·352	·525	·953	·802	16·976	1	29·70	63. 43. 53·97	29·81	36·8	38·0	2. 0·06	102. 17. 32·37
	4	Jupiter S. L.....	E	,,	,,	,,	,,	,,	,,	18·206	7	8·07	63. 44. 32·34	,,	,,		2. 0·12	102. 17. 34·60
	5	☽ S. L.	E	2·916	·247	·763	·898	·359	·173	20·938	4	11·20						
	6	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·877	5	10·90						
	7	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·842	6	11·52	50. 8. 35·64	29·88	35·3	38·0	1. 11·59	87. 41. 46·72
	8	☽ S. L.	E	,,	,,	,,	,,	,,	,,	20·799	7	11·85						
	9	ζ Piscium.....	E	4·397	·706	·208	·330	·830	·667	20·977		42·26	44. 35. 6·53	,,	,,		58·93	83. 7. 27·26
	10	Wire (Nadir Obs.) R.	E	4·539	·873	·362	·500	·017	·846	20·506		36·28	....					....
	11	Calliope	E	0·913	·263	·746	·913	·366	·199	21·263	6	20·02	21. 26. 44·29	29·96	32·0	35·5	23·74	59. 58. 27·91
	12	Cephei 51	E	3·341	·682	·166	·308	·835	·660	22·878		45·92	−35. 44. 49·81	,,	,,		43·48	2. 45. 48·51
	13	Sirius.....	E	1·606	·967	·487	·632	·073	·906	23·023	6	3·11	67. 58. 27·38	29·95	31·7	33·5	2. 28·43	106. 32. 17·61
Dec. 7	14	21 Cassiopeiæ	C	2·182	·540	·025	·180	·690	·516	20·964		29·30	−22. 47. 6·43	30·08	33·4	35·0	25·41	15. 43. 49·96
	15	Piazzi 0. 216	C	4·247	·599	·100	·223	·724	·540	21·644		58·12	48. 5. 22·39	,,	,,		1. 7·31	86. 37. 51·50
	16	Neptune.....	C	,,	,,	,,	,,	,,	,,	19·753		52·81	48. 4. 17·08	,,	,,		1. 7·27	86. 36. 45·92
	17	ζ¹ Piscium	C	1·421	·794	·262	·400	·870	·690	17·450	2	41·35	44. 35. 5·62	,,	33·0		59·62	83. 7. 27·04
	18	ζ² Piscium	C	,,	,,	,,	,,	,,	,,	17·214		31·73	44. 34. 56·00	,,	,,		59·61	83. 7. 17·41
	19	Polaris	C	2·290	·664	·134	·281	·786	·600	20·760		29·14	−37. 7. 6·59	,,	,,		45·80	1. 23. 29·41
	20	μ Piscium	C	4·410	·777	·250	·394	·886	·698	20·530		29·63	45. 59. 53·90	,,	,,		1. 2·63	84. 32. 18·33
	21	☽ S. L.	C	0·116	·524	·980	·123	·564	·399	20·648	2	7·91						
	22	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·610	3	8·34						
	23	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·584	4	9·22						
	24	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·528	5	9·07	45. 45. 32·12	30·08	32·8		1. 2·13	83. 20. 32·67
	25	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·474	6	9·02						
	26	☽ S. L.	C	,,	,,	,,	,,	,,	,,	20·435	7	9·51						
	27	50 Cassiopeiæ	C	1·274	·677	·128	·278	·800	·612	21·116		40·01	−20. 17. 55·72	,,	,,		22·41	18. 13. 3·67
	28	6 Persei	C	0·696	·044	·534	·680	·176	·984	21·236		6·34	1. 1. 30·61	,,	,,		10·8	39. 32. 53·49
	29	ξ¹ Ceti	C	3·390	·760	·215	·360	·866	·660	21·100		46·49	43. 14. 10·76	30·08	32·4		56·95	81. 46. 29·51
	30	Lalande 4458	C	9·734	·108	·599	·772	·220	·041	19·409		5·88	78. 59. 30·15	,,	,,		5. 3·02	117. 35. 54·97
	31	ξ² Ceti	C	0·635	·004	·474	·616	·090	·910	19·980		19·22	43. 35. 43·49	,,	,,		57·67	82. 8. 2·96
	32	Wire (Nadir Obs.) R.	C	4·630	·009	·466	·630	·148	·960	20·305		36·54	....					....
	33	107 Tauri	C	1·614	·974	·450	·596	·046	·863	20·510		36·41	31. 47. 0·68	30·08	31·8		37·60	70. 19. 0·08
	34	108 Tauri	C	3·066	·414	·900	·054	·550	·335	23·757	6	57·01	29. 20. 21·28	,,	,,		34·11	67. 52. 17·19
	35	16 Aurigæ	C	3·720	·093	·580	·720	·246	·021	21·221		12·59	18. 14. 36·86	,,	,,		20·01	56. 46. 18·67
	36	σ Aurigæ	C	2·152	·517	·974	·139	·646	·434	21·250		36·37	14. 13. 0·64	,,	,,		15·38	52. 44. 37·82
	37	ψ¹ Orionis	C	3·327	·711	·190	·322	·830	·600	21·216		47·66	49. 44. 11·93	,,	,,		1. 11·57	88. 16. 45·30
Dec. 9	38	☉ N. L.	D	2·425	·834	·331	·437	·927	·720	20·680	1	36·79	73. 58. 1·06	30·15	28·2	34·0	3. 30·55	112. 49. 1·61
	39	☉ S. L.	D	0·000	·404	·914	·010	·493	·312	20·599		3·72	74. 30. 27·99	,,	,,		3. 38·07	112. 49. 2·23

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N. P. D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N. P. D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
3, 4	− 0·03	1·56	18·10					1	− 13·94	18	+ 16·78	33	− 2·71		
5, &c.	− 2·52	43. 44·83	15. 37·43					2	− 13·17	19	+ 29·99	34	− 3·40		
11	− 0·06	1·92						9	+ 16·84	20	+ 15·23	35	− 4·02		
16		0·23						12	− 19·75	27	+ 25·04	36	− 4·80		
21, &c.	− 2·49	41. 30·73	15. 53·59					13	− 8·48	28	+ 21·29	37	− 4·09		
38	+ 0·06	8·70	16. 16·90					14	+ 32·31	29	+ 12·93				
39		8·73						15	+ 16·87	30	+ 3·51				
								17	+ 16·78	31	+ 11·65				

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = +0″·035; from December 9, +0″·024.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = 0″·1042 × cot. N.P.D. × (wire − 4)².
Correction for inclination of wire = −0″·711 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 8′. 24″·27.

2. Very faint.
5, &c. Cloudy. A correction of +0″·05 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian.
9. Cloudy.
21, &c. A correction of −0″·06 has been applied to the Geocentric N.P.D. of center to reduce to the true meridian. The cross-wires of microscope C fell on the negative side of the micrometer-zero. The fractional part of the reading has been taken from the micrometer-head.
30. The cross-wires of microscopes A, C, and D fell on the negative side of the micrometer-zeros. The fractional parts of the readings were taken from the micrometer-heads, the integer 9 representing −1.
34. Extremely faint; cloudy.
36. Very faint; cloudy.
37. Hardly visible; cloudy.
38, 39. Very tremulous. The microscopes were read by W and H C.
39. The cross-wires of microscope C fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head.

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DAY	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Thermom. Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		"	° ′ ″	in.	°	°	′ ″	° ′ ″
Dec. 12	1	Polaris S.P.	D	4·595	·828	·421	·488	·020	·863	22·175		35·65	−39. 54. 0·08	30·09	43·0	43·0	49·56	−1. 23. 27·84
	2	Spica	D	3·910	·188	·757	·839	·337	·181	21·528	5	30·23	61. 54. 54·50	,,	,,		1. 50·72	100. 28. 7·02
Dec. 13	3	Wire (Nadir Obs.) R.	D	3·910	·181	·724	·802	·336	·185	21·680		35·99	...					....
	4	26 Canis Majoris	D	1·180	·475	·021	·128	·586	·455	22·721	5	24·88	77. 7. 49·15	30·10	38·9	41·0	4. 16·46	115. 43. 27·41
	5	21 Lyncis	D	0·296	·584	·140	·222	·724	·577	20·490		14·36	2. 0. 38·63	,,	,,		2·10	40. 32. 2·53
	6	68 Geminorum	D	4·353	·625	·181	·268	·752	·602	23·687		11·78	35. 21. 36·03	,,	39·0		42·44	73. 53. 40·29
	7	*o* Geminorum	D	2·612	·892	·460	·550	·037	·872	24·811	5	4·88	16. 35. 29·15	,,	,,		17·83	55. 7. 8·78
	8	Bradley 1104	D	4·508	·752	·318	·400	·939	·770	19·485	5	55·56	0. 44. 19·83	,,	,,		0·77	39. 15. 42·40
	9	☽ S. L.	D	2·012	·310	·846	·937	·406	·249	22·158	1	2·05						
	10	☽ S. L.	D	,,	,,	,,	,,	,,	,,	22·200	2	1·41						
	11	☽ S. L.	D	,,	,,	,,	,,	,,	,,	22·249	3	1·06						
	12	☽ S. L.	D	,,	,,	,,	,,	,,	,,	22·313	4	1·29	34. 58. 25·95	30·09	40·5		41·69	72. 39. 16·85
	13	☽ S. L.	D	,,	,,	,,	,,	,,	,,	22·390	5	2·05						
	14	☽ S. L.	D	,,	,,	,,	,,	,,	,,	22·440	6	1·93						
	15	☽ S. L.	D	,,	,,	,,	,,	,,	,,	22·493	7	1·97						
Dec. 15	16	δ Virginis	HC	0·551	·802	·402	·434	·873	·801	20·008		11·31	47. 20. 35·38	29·75	49·8	50·5	1. 2·68	85. 53. 0·06
	17	ε Virginis	HC	2·567	·809	·398	·431	·888	·804	20·000		13·82	39. 47. 38·09	,,	,,		48·14	78. 19. 48·03
	18	54 Virginis (1st Star)	HC	3·259	·493	·137	·154	·622	·508	19·929	1	56·53	69. 33. 20·80	29·75	49·9		2. 33·82	108. 7. 16·42
	19	54 Virginis (2d Star)	HC	,,	,,	,,	,,	,,	,,	19·866		52·54	69. 33. 16·81	,,	,,		2. 33·81	108. 7. 12·42
	20	19 Canum Venaticûm	HC	0·517	·728	·329	·384	·871	·776	19·710		58·42	9. 55. 22·69	,,	,,		10·12	48. 26. 54·61
	21	23 Canum Venaticûm	HC	3·330	·517	·144	·188	·687	·587	19·110		29·60	10. 37. 53·87	,,	,,		10·85	49. 9. 26·52
Dec. 16	22	Wire (Nadir Obs.) R.	HC	3·199	·421	·009	·069	·565	·479	22·963		35·57	....					....
	23	μ Geminorum	HC	1·782	·987	·628	·650	·106	·011	22·980		8·30	28. 53. 31·80	29·61	49·1	50·0	31·80	67. 25 25·40
Dec. 17	24	α Lyræ	GK	3·226	·432	·032	·105	·578	·462	20·325	6	4·29	12. 48. 27·79	29·55	52·1	51·0	13·00	51. 20. 2·59
	25	Wire (Nadir Obs.) R.	GK	3·333	·569	·163	·208	·737	·618	22 694		35·34	....					....
	26	σ Leonis	E	1·830	·004	·632	·677	·107	·037	21·155		6·76	44. 42. 30·26	29·44	38·6	42·5	57·91	83. 14. 49·97
	27	89 Leonis	E	3·892	·086	·713	·746	·210	·126	21·706		33·25	47. 39. 56·75	,,	,,		1. 4·20	86. 12. 22·75
Dec. 18	28	⊙ S. L.	E	3·551	·820	·425	·465	·960	·828	22·872		55·81	75. 5. 19·31	29·41	40·1	55·0	3. 35·59	113. 23. 50·24
	29	⊙ N. L.	E	0·848	·133	·715	·760	·217	·100	23·497	7	28·59	74. 32. 52·09	,,	,,		3. 27·90	113. 23. 50·65
	30	Radcliffe 56	E	0·748	·973	·563	·655	·112	·006	20·885		54·63	−37. 13. 41·87	29·42	38·2	42·0	44·48	1. 16. 55·45
	31	12 Ceti	E	2·862	·086	·700	·768	·187	·094	20·948		4·63	56. 8. 28·13	,,	,,		1. 27·09	94. 41. 17·02
	32	κ Draconis S.P.	E	0·272	·514	·167	·208	·655	·575	21·024		31·60	−57. 59. 4·90	,,	,,		1. 33·42	−19. 29. 16·32
	33	α Cassiopeiæ	E	3·660	·853	·433	·519	·028	·904	21·710		19·23	− 4. 20. 17·27	,,	37·8		4·45	34. 11. 0·08
	34	Piazzi 0 216	E	4·473	·708	·288	·375	·846	·724	21·344	1	0·15	48. 5. 23·65	,,	,,		1. 5·23	86. 37. 50·68
	35	Neptune	E	,,	,,	,,	,,	,,	,,	21·296	1	58·49	48. 5. 21·99	,,	,,		1. 5·23	86. 37. 48·79
	36	μ Andromedæ	E	4·624	·836	·422	·524	·013	·888	22·722		54·68	13. 41. 18·18	,,	,,		14·28	52. 12. 54·26
	37	β Andromedæ	E	1·616	·867	·448	·557	·012	·895	22·325		38·27	16. 33. 1·77	29·42	36·9	41·0	17·45	55. 4. 41·02

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	"	′ ″	′ ″		"	′ ″	′ ″		"		"		"		"
9, &c.	+ 1·23	34. 37·12	16. 35·47					1	+ 31·19	17	− 16·85	27	− 18·67		
28	+ 0·02	8·76	16. 17·70					2	− 7·81	18	− 6·47	30	+ 36·55		
29		8·74						4	− 8·81	19	− 6·47	31	+ 14·53		
35		0·23						5	− 20·41	20	− 24·79	32	− 34·37		
								6	− 16·18	21	− 24·22	33	+ 32·03		
								7	− 20·01	23	− 10·86	34	+ 16·08		
								8	− 22·47	24	+ 15·11	36	+ 26·89		
								16	− 14·82	26	− 19·99	37	+ 25·06		

The integral numbers of revolutions for the Microscope-micrometers B, C, D, E, F, will be inferred from that for A, by remarking that the difference of readings for the several micrometers is small; the reading of E being greater than that of any of the others.

For Tabular Equivalents of Microscope-micrometers it is assumed that the value of the screw of each micrometer is sensibly the same; and that, for the mean of readings of the six micrometers, 4′·902 corresponds to an arc of 5′.

The Refractions, to 82° Zenith Distance, are computed without alteration from the Tables in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z.D., the log. refractions, computed from their appropriate tables in that Appendix, are diminished by ·00100. From 85° to 90°, the mean refractions of Bessel's *Fundamenta* have been employed, the log. mean refractions being diminished by ·00066, and the other quantities being taken from the Appendix to the Observations for 1853.

6. Very cloudy. 8. Cloudy. 9. Very faint, sky covered with cloud. 24. Very faint; cloudy. 28, 29. The microscopes were read by W and G K.

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DAY.	No. for Reference.	NAME OF OBJECT.	Observer.	Readings of the Microscope-Micrometers. A	B	C	D	E	F	Reading of Telescope-Micrometer.	Vertical Wire at which Observation is made.	Seconds of Concluded Meridional Circle Reading.	Apparent Zenith Distance, South.	Barom.	Thermom. Ext.	Int.	Refraction.	Geocentric N.P.D. of Center.
				r	r	r	r	r	r	r		s	° ′ ″	in.	°	°	′ ″	° ′ ″
Dec. 18	1	Polaris	E	1·726	·978	·534	·638	·106	·003	21·762		25·34	−37. 7. 11·16	29·42	36·9		44·43	1. 23. 26·21
	2	ξ Andromedæ	E	1·810	·075	·657	·754	·196	·083	22·283		48·62	6. 38. 12·12	,,	,,		6·83	45. 9. 4c·75
	3	A Cassiopeiæ	E	2·548	·770	·335	·444	·924	·826	21·919		20·07	−18. 6. 16·43	,,	,,		19·20	20. 24. 46·17
	4	τ Andromedæ ...R.	E	0·262	·504	·113	·199	·635	·572	21·310	1	41·75	11. 33. 54·75	,,	,,		12·02	5o. 5. 28·57
	5	τ Andromedæ	E	4·124	·344	·897	·013	·493	·366	19·453	7	29·12	11. 33. 52·62	,,	,,			5o. 5. 26·44
	6	46 Cassiopeiæ ...R.	E	1·670	·895	·493	·571	·998	·922	22·775	2	55·96	−16. 33. 19·46	,,	36·4		17·48	21. 57. 44·86
	7	46 Cassiopeiæ	E	0·507	·765	·335	·444	·912	·803	21·928	5	16·61	−16. 33. 19·89	,,	,,			21. 57. 44·43
	8	5o Cassiopeiæ	E	0·394	·625	·187	·322	·757	·671	22·751		37·15	−20. 17. 59·35	,,	,,		21·75	18. 13. 0·70
	9	π Tauri	E	1·794	·049	·592	·694	·132	·015	22·422		5o·21	37. 3. 13·71	29·48	34·8	41·0	44·61	75. 35. 20·12
	10	θ^1 Tauri	E	1·182	·439	·006	·106	·519	·414	23·148		38·22	35. 48. 1·72	,,	,,		42·61	74. 20. 6·13
	11	c^1 Tauri	E	1·955	·230	·766	·876	·298	·210	22·242		56·48	39. 13. 19·98	,,	,,		48·22	77. 45. 3o·00
	12	σ^1 Tauri	E	4·576	·826	·384	·479	·920	·802	21·984		25·64	35. 55. 49·14	,,	,,		42·82	74. 27. 53·76
	13	Piazzi IV. 179	E	1·358	·596	·174	·273	·690	·594	23·682		6·95	32. 58. 3o·45	,,	,,		38·34	71. 3o. 3o·59
	14	ι Aurigæ	E	1·321	·569	·115	·234	·689	·565	23·416		56·43	14. 13. 19·93	,,	,,		14·98	52. 44. 56·71
	15	ε Aurigæ	E	0·071	·340	·882	·995	·434	·329	21·746		42·73	7. 51. 6·23	,,	,,		8·15	46. 22. 36·18
	16	ε Ursæ Minoris S.P.	E	3·904	·156	·756	·821	·324	·216	21·221		21·04	−46. 15. 15·46	,,	34·8		1. 1·69	−7. 44. 55·35
	17	16 Aurigæ	E	3·621	·889	·474	·573	·036	·887	21·464		11·95	18. 14. 35·45	,,	,,		19·49	56. 46. 16·74
	18	Wire (Nadir Obs.) R.	E	4·707	·972	·522	·615	·114	·003	20·282		36·86	....					....
	19	Uranus	E	3·062	·282	·880	·975	·404	·286	19·993		44·13	28. 8. 7·63	29·51	33·2	41·5	31·74	66. 40. 0·94
Dec. 19	20	Jupiter S. L.	JC	1·376	·703	·251	·345	·767	·643	20·194	1	12·45	63. 1. 35·95	29·68	36·5		1. 56·03	101. 34. 34·93
	21	Jupiter N. L.	JC	,,	,,	,,	,,	,,	,,	19·184		35·74	63. 0. 59·24	,,	,,		1. 55·97	101. 34. 32·86
	22	Wire (Nadir Obs.) R.	JC	4·000	·326	·841	·954	·443	·291	21·492		37·02	....					....
	23	τ Aurigæ	JC	4·231	·523	·056	·179	·666	·498	22·146		12·76	12. 20. 36·26	29·73	33·7		13·08	5o. 52. 11·14
	24	Piazzi V. 243	JC	4·414	·726	·276	·398	·875	·718	21·904		17·49	17. 35. 40·99	,,	,,		18·95	56. 7. 21·74
	25	χ^2 Orionis	JC	3·943	·248	·800	·902	·369	·205	21·434		30·57	31. 44. 54·07	,,	,,		36 96	70. 16. 52·83
	26	36 Aurigæ	JC	3·819	·126	·646	·765	·297	·114	22·413		57·45	3. 35. 20·95	,,	,,		3·75	42. 6. 46·5o
	27	4 Geminorum	JC	0·643	·966	·526	·624	·054	·915	22·424		43·48	28. 27. 6·98	,,	,,		32·37	66. 59. 1·15
	28	δ Virginis	P	3·372	·702	·250	·322	·799	·638	23·559	5	9·05	47. 20. 32·55	29·82	26·9		1. 5·92	85. 53. 0·27
	29	θ Virginis	P	2·139	·459	·037	·136	·540	·420	19·573		36·65	56. 17. 0·15	,,	,,		1. 3o·90	94. 49. 52·85
	3o	Polaris S.P.	P	1·230	·533	·088	·183	·650	·522	19·495		39·04	−39. 53. 57·46	,,	,,		5o·80	−1. 23. 26·46
	31	23 Canum Venaticûm	P	2·962	·278	·815	·949	·397	·254	19·622	6	28·02	10. 37. 51·52	,,	,,		11·41	49. 9. 24·73
	32	Spica	P	5·020	·352	·921	·003	·422	·304	19·445		28·74	61. 54. 52·24	29·81	26·6		1. 53·55	100. 28. 7·59
	33	☽ S. L.	P	1·545	·882	·472	·549	·963	·831	25·287	1	27·31						
	34	☽ S. L.	P	,,	,,	,,	,,	,,	,,	25·420	2	28·90						
	35	☽ S. L.	P	,,	,,	,,	,,	,,	,,	25·522	3	29·38						
	36	☽ S. L.	P	,,	,,	,,	,,	,,	,,	25·602	4	29·10	58. 29. 52·95	,,	26·4		1. 39·01	95. 59. 43·28
	37	☽ S. L.	P	,,	,,	,,	,,	,,	,,	25·731	5	30·45						
	38	☽ S. L.	P	,,	,,	,,	,,	,,	,,	25·832	6	30·85						
	39	☽ S. L.	P	,,	,,	,,	,,	,,	,,	25·903	7	30·15						
Dec. 20	40	Wire (Nadir Obs.) R.	P	4·482	·859	·353	·462	·982	·793	20·577		36·81	....					....

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″
19		0·23	
20, 21	− 0·04	1·50	17·35
33, &c.	+ 2·36	47. 48·72	15. 21·76

No.	Change of N.P.D. for one interval of Wires.	Parallax.	Semi-diameter.
	″	′ ″	′ ″

No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.	No.	Correction to Mean N.P.D. 1867, Jan. 1.
	″		″		″		″
1	+ 32·29	11	− 0·28	24	− 7·39	32	− 9·04
2	+ 26·66	12	− 0·06	25	− 7·79		
3	+ 3o·16	13	− 0·52	26	− 8·32		
4, 5	+ 23·81	14	+ 1·00	27	− 9·47		
6, 7	+ 27·59	15	− 0·22	28	− 15·69		
8	+ 27·3o	16	+ 0·38	29	− 11·84		
9	+ 1·16	17	− 3·2o	3o	+ 32·59		
10	+ 1·12	23	− 6·87	31	− 25·26		

Adopted Colatitude = 38°. 31′. 21″·80.
General correction for runs for 100″ = + o″·024; from December 16, + o″·101.
Correction for Telescope-Micrometer = Micrometer Reading × 34″·526.
Correction for curvature of path = o″·1042 × cot. N. P. D. × (wire − 4)².
Correction for inclination of wire = − o″·711 × (wire − 4), for objects above the pole.
Zenith Point Correction = + 8′. 24″·27; from December 16, + 8″. 23″·50.

10, 17, 27. Cloudy.
15. Cloudy. The cross-wires of microscope C and D fell on the negative side of the micrometer-zeros.
30. Very tremulous.
33, &c. Definition extremely bad.
12. Very faint.
The fractional parts of the readings were taken from the micrometer-heads.
40. The reading of microscope B was set down 4ʳ·659.

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ROYAL OBSERVATORY, GREENWICH.

RUNS OF EACH MICROSCOPE-MICROMETER

OF THE

TRANSIT-CIRCLE;

AND

ZENITH POINTS OF THE TRANSIT-CIRCLE,

IN THE YEAR

1867.

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Day, 1867.		Observer.	Pointer Reading.	Runs of Microscope-Micrometers. A	B	C	D	E	F	Sum of Runs.
	d		°	r	r	r	r	r	r	r
March	29	JC	328	4·900	4·878	4·881	4·876	4·870	4·873	29·278
	,,		349	·895	·878	·874	·860	·850	·863	·220
	,,		10	·906	·875	·872	·871	·885	·871	·280
April	5	D	20	4·918	4·889	4·881	4·878	4·869	4·879	29·314
	,,		42	·913	·880	·883	·889	·871	·878	·314
	,,		65	·908	·897	·887	·891	·876	·883	·342
	,,	D	20	4·919	4·894	4·880	4·884	4·859	4·873	29·309
	,,		42	·909	·887	·887	·891	·875	·876	·325
	,,		65	·908	·885	·883	·896	·882	·874	·328
	15	E	84	4·905	4·889	4·888	4·871	4·866	4·865	29·284
	,,		105	·896	·871	·886	·863	·845	·859	·220
	,,		126	·892	·866	·885	·891	·867	·870	·271
	,,	E	84	4·892	4·853	4·879	4·886	4·855	4·876	29·241
	,,		105	·917	·877	·871	·875	·836	·858	·234
	,,		126	·901	·906	·929	·872	·875	·873	·356
	17	C	146	4·891	4·886	4·899	4·896	4·886	4·894	29·352
	,,		166	·889	·875	·872	.897	·879	·878	·290
	,,		191	·916	·899	·895	·890	·886	·900	·386
	,,	C	146	4·929	4·900	4·888	4·882	4·896	4·896	29·391
	,,		166	·888	·909	·882	·889	·877	·877	·322
	,,		191	·912	·879	·894	·885	·896	·884	·350
	27	JC	212	4·898	4·865	4·890	4·883	4·875	4·870	29·281
	,,		233	·896	·894	·887	·893	·903	·894	·367
	,,		254	·896	·891	·885	·891	·892	·876	·331
May	4	D	274	4·901	4·865	4·877	4·879	4·854	4·861	29·237
	,,		295	·909	·887	·868	·865	·871	·866	·266
	,,		310	·897	·890	·881	·886	·876	·875	·305
	10	E	329	4·913	4·878	4·864	4·874	4·844	4·855	29·228
	,,		348	·901	·865	·858	·853	·849	·877	·203
	,,		7	·916	·864	·869	·832	·838	·876	·195
	,,	E	329	4·899	4·870	4·882	4·872	4·844	4·874	29·241
	,,		348	·895	·859	·879	·884	·829	·861	·207
	,,		7	·898	·874	·884	·861	·845	·846	·208
	11	JC	329	4·896	4·885	4·887	4·882	4·890	4·894	29·334
	,,		348	·897	·867	·856	·868	·868	·857	·213
	,,		7	·887	·873	·851	·879	·876	·857	·223
	,,	JC	329	4·906	4·884	4·888	4·880	4·889	4·884	29·331
	,,		348	·905	·870	·856	·888	·869	·857	·245
	,,		7	·897	·860	·881	·880	·872	·854	·244
	20	C	27	4·905	4·880	4·880	4·858	4·847	4·856	29·226
	,,		47	·924	·866	·874	·858	·848	·870	·240
	,,		67	·893	·869	·864	·865	·858	·879	·228
	24	JC	87	4·860	4·899	4·905	4·908	4·924	4·891	29·387
	,,		107	·894	·891	·884	·869	·865	·863	·266
	,,		127	·884	·881	·879	·884	·866	·858	·252

The observations for runs were ordinarily made a little before noon on the civil day given in the first column of the Table.
The means of the observations made on April 5, 15, and 17 were used in the reductions.
The means of the observations made on May 10 and 11 were used in the reductions.
The mean of the observations made on May 24 was used in the reductions.

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Day 1867.		Observer.	Pointer Reading.	Runs of Microscope-Micrometers. A	B	C	D	E	F	Sum of Runs.
	d		°	r	r	r	r	r	r	r
May	24	JC	87	4·911	4·896	4·900	4·911	4·913	4·890	29·421
	,,		107	·906	·883	·885	·871	·873	·877	·295
	,,		127	·900	·878	·878	·884	·851	·869	·260
	30	D	140	4·929	4·865	4·877	4·888	4·868	4·877	29·304
	,,		163	·910	·878	·896	·904	·906	·879	·373
	,,		178	·911	·894	·892	·890	·876	·881	·344
June	8	E	197	4·922	4·901	4·881	4·876	4·846	4·867	29·293
	,,		216	·881	·876	·869	·872	·855	·866	·219
	,,		235	·902	·875	·854	·853	·855	·857	·196
	12	S	65	4·912	4·866	4·888	4·866	4·875	4·876	29·283
	,,		65	·924	·891	·880	·884	·884	·882	·345
	,,		87	·903	·890	·888	·890	·859	·864	·294
	,,		87	·885	·890	·880	·883	·856	·873	·267
	,,	D	65	4·919	4·881	4·908	4·878	4·872	4·889	29·347
	,,		65	·893	·878	·876	·880	·874	·893	·294
	,,		87	·913	·884	·888	·877	·862	·869	·293
	,,		87	·904	·883	·878	·867	·859	·866	·257
	,,	E	65	4·918	4·873	4·906	4·868	4·905	4·878	29·348
	,,		65	·904	·874	·867	·872	·871	·866	·254
	,,		87	·894	·890	·884	·886	·866	·871	·291
	,,		87	·910	·871	·891	·865	·859	·878	·274
	,,	C	65	4·904	4·876	4·895	4·880	4·880	4·883	29·318
	,,		65	·891	·882	·894	·876	·886	·878	·307
	,,		87	·906	·899	·875	·883	·861	·875	·299
	,,		87	·901	·886	·886	·883	·846	·860	·262
	,,	L	65	4·908	4·858	4·888	4·861	4·874	4·880	29·269
	,,		65	·906	·873	·870	·871	·861	·871	·252
	,,		87	·910	·886	·901	·869	·855	·867	·288
	,,		87	·896	·859	·876	·870	·861	·874	·236
	,,	JC	65	4·903	4·871	4·908	4·874	4·888	4·877	29·321
	,,		65	·907	·865	·881	·887	·869	·880	·289
	,,		87	·906	·880	·884	·868	·874	·863	·275
	,,		87	·897	·873	·861	·878	·852	·870	·231
	,,	K	65	4·917	4·872	4·869	4·902	4·871	4·875	29·306
	,,		65	·923	·879	·886	·887	·889	·886	·350
	,,		87	·899	·885	·883	·893	·855	·871	·286
	,,		87	·903	·874	·869	·870	·857	·874	·247
	,,	P	65	4·924	4·864	4·878	4·873	4·851	4·892	29·282
	,,		65	·902	·871	·876	·876	·881	·861	·267
	,,		87	·905	·888	·871	·883	·861	·875	·283
	,,		87	·892	·881	·875	·881	·856	·868	·253
	,,	HC	65	4·906	4·872	4·877	4·875	4·865	4·880	29·275
	,,		65	·903	·873	·860	·878	·878	·870	·262
	,,		87	·896	·882	·880	·870	·870	·872	·270
	,,		87	·902	·886	·869	·878	·862	·866	·263

The observations for runs were ordinarily made a little before noon on the civil day given in the first column of the Table.
The mean of the observations made on June 12 was used in the reductions.

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Day, 1867.		Observer.	Pointer Reading.	Runs of Microscope-Micrometers.						Sum of Runs.
				A	B	C	D	E	F	
	d		°	r	r	r	r	r	r	r
December	19	E	15	4·904	4·884	4·877	4·883	4·930	4·901	29·379
	,,		36	·915	·880	·906	·878	·921	·915	·415
	,,		57	·902	·885	·869	·856	·937	·907	·356
	27	C	77	4·894	4·896	4·873	4·864	4·929	4·884	29·340
	,,		97	·905	·880	·878	·866	·909	·884	·322
	,,		117	·882	·873	·873	·857	·935	·880	·300

The observations for runs were ordinarily made a little before noon on the civil day given in the first column of the Table.

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ZENITH POINTS of the TRANSIT-CIRCLE OBTAINED during the YEAR 1867, by REFLEXION-OBSERVATIONS of STARS and of the IMAGE of the HORIZONTAL WIRE.

Day and Hour, 1867.	Object Observed.	Position.	Seconds of R + D.	Seconds of $\frac{R+D}{2}$	Adopted Value of $\frac{R+D}{2}$
d h			″	″	″
Jan. 11. 7	Groombridge 1463	North	42·05	21·03	
Jan. 1. 9	Wire.....	Nadir		20·30	
2. 10	Wire.....	,,		20·98	
3. 6	Wire.....	,,		20·53	
4. 6	Wire.....	,,		20·87	
5. 6	Wire.....	,,		21·88	
8. 6	Wire.....	,,		21·01	20·92
9. 7	Wire.....	,,		21·81	
10. 8	Wire.....	,,		20·97	
11. 14	Wire.....	,,		21·75	
Jan. 1. 12	ζ Geminorum....	South	39·99	20·00	
12. 6	τ Andromedæ ...	,,	42·25	21·12	
Jan. 14. 7	47 Cephei	North	43·62	21·81	
Jan. 14. 8	Wire.....	Nadir		21·54	
15. 8	Wire.....	,,		21·85	
16. 8	Wire.....	,,		21·64	
17. 9	Wire.....	,,		21·87	
18. 7	Wire.....	,,		21·32	21·67
19. 7	Wire.....	,,		22·15	
21. 13	Wire.....	,,		22·22	
22. 7	Wire.....	,,		21·57	
25. 6	Wire.....	,,		22·28	
Jan. 14. 6	τ Andromedæ ...	South	42·11	21·06	
Jan. 28. 11	Groombridge 1374	North	43·73	21·87	
31. 6	Bradley 448.....	,,	41·78	20·89	
Jan. 28. 6	Wire.....	Nadir		21·79	
29. 12	Wire.....	,,		21·53	
30. 7	Wire.....	,,		20·93	
31. 6	Wire.....	,,		21·29	
Feb. 1. 5	Wire.....	,,		21·69	
2. 8	Wire.....	,,		21·68	21·29
4. 7	Wire.....	,,		21·08	
6. 6	Wire.....	,,		21·55	
7. 12	Wire.....	,,		[19·57]	
8. 7	Wire.....	,,		20·91	
9. 7	Wire.....	,,		20·86	
Jan. 28. 12	6 Cancri.....	South	41·26	20·63	
31. 7	o Persei	,,	43·19	21·60	
Feb. 14. 7	Piazzi IV. 269 ..	North	44·90	22·45	
20. 9	Piazzi VI. 292 ..	,,	42·10	21·05	
Feb. 11. 6	Wire.....	Nadir		21·24	
12. 6	Wire.....	,,		21·13	
13. 7	Wire.....	,,		21·64	
14. 7	Wire.....	,,		21·25	
15. 7	Wire.....	,,		21·01	
Feb. 16. 7	Wire.....	Nadir		21·22	
18. 11	Wire.....	,,		21·11	21·24
19. 6	Wire.....	,,		21·08	
20. 9	Wire.....	,,		20·55	
21. 8	Wire ..!.....	,,		20·84	
22. 8	Wire.....	,,		21·48	
23. 8	Wire.....	,,		21·15	
Feb. 14. 7	ι Aurigæ	South	42·94	21·47	
20. 9	δ Geminorum....	,,	40·70	20·35	
23. 7	β Tauri.....	,,	42·53	21·27	
Feb. 28. 11	*d* Ursæ Majoris..	North	41·13	20·57	
Mar. 2. 12	B. F. 1506.....	,,	41·85	20·92	
5. 9	Piazzi VIII. 46..	,,	42·70	21·35	
Feb. 25. 11	Wire.....	Nadir		21·72	
26. 8	Wire.....	,,		20·77	
27. 7	Wire.....	,,		20·32	
28. 11	Wire.....	,,		22·45	
Mar. 2. 7	Wire.....	,,		23·83	
4. 7	Wire.....	,,		21·81	21·42
5. 10	Wire.....	,,		22·11	
6. 8	Wire.....	,,		21·45	
7. 8	Wire.....	,,		21·49	
8. 9	Wire.....	,,		23·29	
Feb. 28. 11	ε Leonis	South	44·19	22·10	
Mar. 1. 9	δ Geminorum....	,,	42·72	21·36	
2. 12	30 Leonis Minoris	,,	42·24	21·12	
5. 9	ν Geminorum ...	,,	41·75	20·87	
Mar. 15. 12	Piazzi XI. 43....	North	44·13	22·07	
21. 8	A Ursæ Majoris .	,,	43·72	21·86	
Mar. 11. 5	Wire.....	Nadir		21·19	
13. 7	Wire.....	,,		21·84	
15. 7	Wire.....	,,		21·69	
16. 10	Wire.....	,,		21·67	21·81
18. 10	Wire.....	,,		21·71	
20. 7	Wire.....	,,		21·82	
21. 9	Wire.....	,,		21·28	
Mar. 15. 12	61 Ursæ Majoris.	South	43·91	21·96	
21. 9	γ Cancri	,,	43·63	21·81	
Mar. 26. 11	λ Draconis	North	42·86	21·43	
27. 10	Bradley 1446....	,,	43·98	21·99	
28. 8	ρ Ursæ Majoris ..	,,	40·98	20·49	
29. 12	Bradley 1634....	,,	45·23	22·62	
Mar. 25. 6	Wire.....	Nadir		21·29	
26. 11	Wire.....	,,		22·33	
27. 7	Wire.....	,,		21·49	
28. 7	Wire.....	,,		21·45	21·55

Feb. 7d. 12h. This observation of the wire is not used in the mean.

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Day and Hour, 1867.	Object Observed.	Position.	Seconds of R + D.	Seconds of $\frac{R+D}{2}$	Adopted Value of $\frac{R+D}{2}$
d h			"	"	"
Aug. 30. 11	Wire.....	Nadir		26·82	
31. 9	Wire.....	,,		25·86	
Sept. 2. 8	Wire.....	,,		26·37	25·95
3. 9	Wire.....	,,		26·37	
4. 10	Wire.....	,,		25·86	
5. 13	Wire.....	,,		26·08	
6. 10	Wire.....	,,		25·50	
7. 11	Wire.....	,,		25·58	
Aug. 27. 12	ι Pegasi	South	52·18	26·09	
Sept. 3. 10	61¹ Cygni	,,	53·16	26·58	
4. 8	ι Lyræ	,,	50·40	25·20	
5. 12	μ Pegasi.....	,,	50·11	25·06	
6. 14	ε Andromedæ....	,,	50·39	25·19	
Sept. 10. 11	16 Cephei	North	53·58	26·79	
12. 12	Bradley 3058....	,,	53·39	26·70	
13. 7	δ Draconis	,,	52·15	26·07	
16. 7	δ Draconis	,,	54·79	27·40	
20. 9	θ Cephei.....	,,	53·07	26·53	
21. 7	δ Draconis	,,	52·04	26·02	
Sept. 9. 7	Wire.....	Nadir		26·50	
10. 10	Wire.....	,,		27·74	
11. 10	Wire.....	,,		25·59	
12. 8	Wire.....	,,		26·21	
13. 7	Wire.....	,,		26·17	
14. 13	Wire.....	,,		26·10	26·17
16. 7	Wire.....	,,		25·87	
17. 8	Wire.....	,,		26·71	
18. 8	Wire.....	,,		26·36	
20. 7	Wire.....	,,		26·11	
21. 7	Wire.....	,,		26·47	
Sept. 10. 11	16 Pegasi	South	51·59	25·80	
12. 9	17 Vulpeculæ ...	,,	52·28	26·14	
13. 7	ι Lyræ	,,	49·52	24·76	
16. 7	ι Lyræ	,,	51·28	25·64	
20. 10	32 Vulpeculæ....	,,	51·31	25·65	
21. 7	ι Lyræ	,,	51·57	25·79	
Sept. 24. 9	77 Draconis.....	North	54·27	27·14	
25. 7	δ Draconis	,,	50·83	25·41	
Oct. 1. 8	α Cephei	,,	52·49	26·25	
5. 9	16 Cephei.....	,,	49·59	24·79	
Sept. 23. 6	Wire.....	Nadir		26·86	
24. 11	Wire.....	,,		26·94	
25. 7	Wire.....	,,		25·84	
26. 9	Wire.....	,,		27·08	
27. 10	Wire.....	,,		24·88	
28. 6	Wire.....	,,		27·12	
30. 8	Wire.....	,,		26·22	25·93
Oct. 1. 7	Wire.....	,,		26·49	
2. 11	Wire.....	,,		26·11	
3. 10	Wire.....	,,		26·63	
4. 7	Wire.....	,,		25·11	
5. 6	Wire.....	,,		26·30	

Day and Hour, 1867.	Object Observed.	Position.	Seconds of R + D.	Seconds of $\frac{R+D}{2}$	Adopted Value of $\frac{R+D}{2}$
d h			"	"	"
Sept. 24. 8	17 Vulpeculæ ...	South	51·31	25·66	
25. 7	ι Lyræ	,,	51·37	25·68	
28. 10	Groombridge 3804	,,	52·01	26·01	
Oct. 1. 8	ζ Cygni.....	,,	51·76	25·88	
5. 9	16 Pegasi.....	,,	50·13	25·06	
Oct. 7. 9	79 Draconis	North	47·73	23·87	
8. 9	16 Cephei.....	,,	49·86	24·93	
10. 8	β Cephei.....	,,	50·65	25·32	
17. 10	Groombridge 4163	,,	47·67	23·89	
19. 9	ε Cephei	,,	49·33	24·66	
Oct. 7. 8	Wire.....	Nadir		24·12	
8. 8	Wire.....	,,		24·55	
10. 13	Wire.....	,,		24·44	
11. 10	Wire.....	,,		24·76	
12. 7	Wire.....	,,		24·74	24·50
16. 7	Wire.....	,,		25·18	
17. 6	Wire.....	,,		24·37	
18. 9	Wire.....	,,		23·91	
19. 6	Wire.....	,,		23·87	
Oct. 7. 9	32 Pegasi	South	50·27	25·14	
8. 9	32 Pegasi.....	,,	49·13	24·56	
10. 9	16 Pegasi.....	,,	50·59	25·30	
17. 10	α Andromedæ ...	,,	46·19	23·09	
19. 10	71 Pegasi.....	,,	48·97	24·49	
Oct. 26. 9	Bradley 3166....	North	48·44	24·22	
Oct. 22. 7	Wire.....	Nadir		24·40	
23. 8	Wire.....	,,		23·26	
24. 8	Wire.....	,,		23·91	23·84
25. 5	Wire.....	,,		23·96	
26. 9	Wire.....	,,		24·17	
Oct. 26. 9	71 Pegasi.....	South	46·59	23·30	
Oct. 28. 8	28 Cephei.....	North	12·07	6·04	
Oct. 28. 7	Wire.....	Nadir		4·35	5·30
Oct. 28. 8	32 Pegasi.....	South	9·78	4·89	
Nov. 2. 8	11 Cephei	North	38·85	49·43	
5. 8	Bradley 3058....	,,	40·16	50·08	
6. 11	46 Cassiopeiæ ...	,,	40·24	50·12	
7. 5	κ Cephei.....	,,	37·18	48·59	
8. 8	ε Cephei	,,	37·75	48·87	
11. 7	11 Cephei	,,	37·20	48·60	
Oct. 30. 8	Wire.....	Nadir		48·03	
31. 11	Wire.....	,,		47·80	
Nov. 1. 8	Wire.....	,,		49·03	
2. 5	Wire.....	,,		49·03	
4. 6	Wire.....	,,		49·01	
5. 8	Wire.....	,,		50·18	49·27
6. 11	Wire..... ...	,,		49·67	

On the morning of October 29 a fragment of the cotton waste used for cleaning the pivots of the Transit Circle on October 28 was found on the western Y. The Zenith Point deduced from observations made on October 28 has been used for the reduction of the observations of October 27 and 28.

October 29^{d}. 0^{h}. The wire frame of the telescope was removed for the insertion of two new wires.

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Day and Hour, 1867.	Object Observed.	Position.	Seconds of R + D.	Seconds of $\frac{R+D}{2}$	Adopted Value of $\frac{R+D}{2}$
d h			s	s	s
Nov. 7. 7	Wire.....	Nadir		49·57	
8. 8	Wire.....	,,		48·50	
9. 7	Wire.....	,,		50·26	
11. 6	Wire.....	,,		49·18	
Nov. 2. 8	32 Pegasi.....	South	38·34	49·17	
5. 8	μ Pegasi.....	,,	37·75	48·88	
6. 11	α Arietis	,,	38·34	49·17	
7. 5	17 Vulpeculæ ...	,,	40·47	50.23	
8. 8	μ Pegasi.....	,,	39·52	49·76	
11. 8	16 Pegasi.....	,,	37·79	48·90	
Nov. 13. 9	Bradley 6.....	North	66·43	33·22	
19. 8	Bradley 6.....	,,	67·00	33·50	
Nov. 12. 12	Wire.....	Nadir		33·02	
13. 6	Wire.....	,,		33·07	
14. 7	Wire.....	,,		32·63	
15. 6	Wire.....	,,		32·40	32·61
16. 9	Wire.....	,,		32·46	
18. 6	Wire.....	,,		32·78	
19. 8	Wire.....	,,		32·36	
Nov. 13. 8	ψ Pegasi.....	South	63·50	31·75	
19. 8	α Andromedæ ...	,,	63·65	31·83	
Nov. 23. 8	Bradley 24.....	North	69·36	34·68	
Nov. 23. 8	Wire.....	Nadir		34·52	34·40
Nov. 23. 8	Bradley 3212....	South	68·14	34·07	
Nov. 21. 8	γ Cephei.....	North	66·07	33·04	
27. 5	α Cephei.....	,,	67.37	33·68	
28. 5	79 Draconis.....	,,	67·72	33·86	
Nov. 20. 11	Wire.....	Nadir		32·70	
21. 7	Wire.....	,,		33·90	
22. 8	Wire.....	,,		33·55	
25. 7	Wire.....	,,		33·31	
26. 7	Wire.....	,,		32·82	33·31
27. 6	Wire.....	,,		33·08	
28. 5	Wire.....	,,		33·90	

Day and Hour, 1867.	Object Observed.	Position.	Seconds of R + D.	Seconds of $\frac{R+D}{2}$	Adopted Value of $\frac{R+D}{2}$
d h			s	s	s
Nov. 29. 5	Wire.....	Nadir		33·87	
30. 5	Wire.....	,,		33·11	
Nov. 21. 8	α Andromedæ ...	South	65·32	32·66	
27. 5	ι Pegasi	,,	65·91	32·96	
28. 5	ι Pegasi	,,	67·07	33·53	
Dec. 4. 7	Bradley 6.....	North	71·40	35·70	
12. 8	ω Cassiopeiæ	,,	71·14	35·57	
Dec. 2. 6	Wire.....	Nadir		36·79	
3. 6	Wire.....	,,		36·66	
4. 8	Wire.....	,,		36·22	
5. 5	Wire.....	,,		35·58	
6. 9	Wire.....	,,		36·28	
7. 10	Wire.....	,,		36·54	35·73
9. 8	Wire.....	,,		35·50	
11. 8	Wire.....	,,		35·44	
12. 5	Wire.....	,,		36·27	
13. 10	Wire.....	,,		35·99	
Dec. 4. 7	Bradley 3212....	South	70·24	35·12	
12. 9	α Arietis	,,	70·37	35·19	
Dec. 18. 8	46 Cassiopeiæ....	North	72·57	36·29	
24. 12	Cephei 51	,,	74·30	37·15	
Dec. 16. 7	Wire.....	Nadir		35·57	
17. 7	Wire.....	,,		35·34	
18. 12	Wire.....	,,		36·86	
19. 7	Wire.....	,,		37·02	
20. 8	Wire.....	,,		36·81	
21. 8	Wire.....	,,		36·49	
23. 7	Wire.....	,,		36·64	36·50
24. 7	Wire.....	,,		36·06	
26. 11	Wire.....	,,		37·30	
27. 8	Wire.....	,,		37·23	
28. 5	Wire.....	,,		37·22	
30. 7	Wire.....	,,		36·09	
31. 7	Wire.....	,,		36·39	
Dec. 18. 8	τ Andromedæ ...	South	70·87	35·44	
24. 12	54 Aurigæ.....	,,	73·91	36·95	

December 2d. 10h. a.m. The Transit-Circle microscopes were adjusted for focus, &c.

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α Andromedæ.

	Direct.
Oct. 17	61° 38′ 37″·08
26	39·53
Nov. 19	37·72
21	38·34
	Reflexion.
Oct. 17	61. 38. 39·89
Nov. 19	39·29
21	39·64

87 Pegasi.

Sept. 18	72. 31. 38·04
19	38·76

γ Pegasi.

Feb. 28	75. 33. 20·27
Oct. 26	21·78

23 Andromedæ.

Sept. 19	49. 41. 56·64
20	57·16

7 Ceti.

Oct. 19	109. 40. 12·05

Bradley 6.

Nov. 13	13. 47. 19·24
19	19·50
Dec. 4	19·35
	Reflexion.
Nov. 13	13. 47. 18·03
19	17·72
Dec. 4	19·41

σ Andromedæ.

Sept. 18	53. 57. 8·71
20	10·92

Radcliffe 56.

	Direct.
Nov. 11	1° 17′ 33″·00
Dec. 18	32·00

ι Ceti.

Dec. 12	99. 33. 42·08

ρ Andromedæ.

Oct. 19	52. 46. 5·00
Nov. 13	5·66

ι Sculptoris.

Jan. 11	119. 42. 57·89
Oct. 3	63·30
4	59·82
17	60·90
26	65·63

42 Piscium.

Sept. 18	77. 15. 22·52
19	22·99

43 Piscium.

Sept. 19	76. 25. 19·16
30	18·49

Bradley 24.

Nov. 21	10. 41. 5·04
23	4·46
	Reflexion.
Nov. 23	10. 41. 3·90

Bradley 27.

Sept. 20	70. 35. 24·29

10 Ceti.

	Direct.
Aug. 18	90° 47′ 10″·96

47 Piscium.

Sept. 18	72. 50. 38·11
19	38·97

28 Andromedæ.

Sept. 30	60. 58. 54·68
Oct. 1	55·58
3	54·43
4	53·96
18	53·79
Nov. 13	54·71
21	55·77

12 Ceti.

Jan. 11	94. 41. 34·26
Oct. 12	33·81
Dec. 18	31·55

49 Piscium.

Sept. 20	74. 41. 50·11

B. F. 34.

Sept. 19	57. 9. 10·15
Oct. 8	9·62
Nov. 1	10·59
7	9·65
11	9·40

Bradley 41.

Sept. 20	74. 42. 44·24

52 Piscium.

Sept. 18	70. 26. 18·83
30	18·58
Oct. 19	17·78

13 Ceti.

	Direct.
Jan. 11	94° 19′ 31″·20
Aug. 18	31·47
Oct. 12	31·74

B. F. 40.

Sept. 18	77. 31. 9·76

Piazzi 0. 128.

Sept. 19	55. 19. 59·17
20	56·79
Oct. 4	57·00
5	57·63
8	57·64

ε Andromedæ.

Sept. 6	61. 24. 38·65
	Reflexion.
Sept. 6	61. 24. 40·16

55 Piscium.

Sept. 10	69. 17. 30·93
Oct. 3	30·82

α Cassiopeiæ.

Jan. 25	34. 11. 32·38
Nov. 8	32·77
13	33·44
Dec. 4	32·69
12	33·88
18	32·11

32 Andromedæ.

Oct. 1	51. 16. 18·94
19	17·62

Piazzi 0. 148.

	Direct.
Sept. 18	66° 6′ 2″·95
19	3·65
20	1·42
Oct. 4	1·03
5	1·60

β Ceti.

Nov. 21	108. 43. 1·49

21 Cassiopeiæ.

Oct. 12	15. 44. 22·77
26	22·68
Nov. 2	22·16
8	22·28
11	20·82
13	22·79
23	21·48
Dec. 7	22·27
12	22·72

23 Cassiopeiæ.

Sept. 16	15. 52. 47·46
Oct. 19	47·96
Nov. 19	46·34

59 Piscium.

Sept. 10	71. 8. 55·03
18	56·04

η Cassiopeiæ.

Jan. 25	32. 53. 26·43
Sept. 24	25·10
Oct. 8	25·02

δ Piscium.

Sept. 14	83. 8. 22·33
15	22·07
Nov. 8	21·38

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i^1 Piscium.

	Direct.
Sept. 16	63° 0′ 51″·90
20	50·93

i^2 Piscium.

Sept. 16	63. 0. 53·43
20	53·27

20 Ceti.

Sept. 14	91. 51. 60·89
15	59·39

Piazzi 0. 216.

Oct. 19	86. 38. 7·35
26	7·67
Nov. 2	6·33
7	7·13
8	7·70
11	6·95
13	8·32
21	8·81
23	6·68
28	9·31
Dec. 4	7·36
7	8·37
9	11·61
12	8·79
18	6·76
24	8·68

66 Piscium.

Sept. 6	71. 31. 59·72
24	58·56

μ Andromedæ.

Dec. 12	52. 13. 22·31
18	21·15

B. F. 92.

Sept. 30	63. 43. 16·40
Oct. 5	14·18
8	14·64
19	13·07
Nov. 8	15·76

h Piscium.

	Direct.
Aug. 20	61° 43′ 38″·49

Groombridge 215.

Nov. 19	16. 20. 34·69

ϵ Piscium.

Jan. 12	82. 49. 36·95
13	35·96
Nov. 8	35·39

Bradley 114.

Oct. 1	24. 44. 33·97
26	32·83

27 Ceti.

Jan. 12	100. 41. 30·97
Aug. 27	29·60

78 Piscium.

Jan. 25	58. 41. 53·80
Sept. 24	55·46
Oct. 4	52·34
8	53·96

ψ^2 Piscium.

Oct. 1	69. 58. 7·81

Bradley 117.

Oct. 26	11. 2. 8·87
Nov. 13	7·41

29 Ceti.

Aug. 27	88. 42. 9·60

31 Cassiopeiæ.

	Direct.
Nov. 13	21° 55′ 48″·35

31 Cassiopeiæ S.P.

May 27	−21. 55. 49·87
28	46·94

η Ceti.

Nov. 6	100. 53. 15·52

β Andromedæ.

June 26	55. 5. 7·60
Nov. 23	6·87
Dec. 12	7·61
18	6·08

44 Andromedæ.

Oct. 4	48. 37. 34·92
Nov. 5	36·53
7	36·48
8	35·48
19	34·95

32 Cassiopeiæ.

Nov. 27	25. 41. 21·07

32 Cassiopeiæ S.P.

May 27	−25. 41. 22·46
28	21·80

45 Andromedæ.

Aug. 27	52. 59. 4·41
Nov. 6	3·78

33 Ceti.

	Direct.
Nov. 1	88° 15′ 45″·61
2	44·28
21	46·87
23	45·69
28	45·60

Bradley 137.

Oct. 26	10. 47. 51·08
Nov. 28	52·26

35 Ceti.

Oct. 8	88. 13. 55·74
10	54·51
19	53·13

36 Ceti.

Oct. 8	97. 29. 24·07
19	23·70
Nov. 13	21·84

ϕ Piscium.

Aug. 20	66. 7. 17·01
Nov. 7	17·47
8	17·45
16	18·54

ζ^1 Piscium.

Jan. 12	83. 7. 44·32
13	43·73
Dec. 6	44·10
7	43·82

ζ^2 Piscium.

Dec. 7	83. 7. 34·19

87 Piscium.

Aug. 27	74. 34. 17·80
Oct. 1	17·73
Nov. 5	15·80

38 Ceti.

	Direct.
Nov. 2	91° 41′ 7″·83

Polaris.

Mar. 16	1. 23. 58·09
27	59·30
April 1	58·76
3	58·38
5	59·77
21	58·62
May 3	59·63
5	59·34
7	59·06
8	58·97
9	60·65
June 9	58·98
10	59·24
11	58·66
24	59·48
26	59·17
Sept. 6	59·63
13	59·07
25	58·03
30	59·39
Oct. 2	59·12
4	58·36
8	58·90
10	58·72
25	58·50
26	58·96
28	57·95
Nov. 1	59·04
5	59·34
6	59·42
7	58·18
8	58·46
11	58·89
19	59·04
21	58·94
23	57·95
27	58·36
Dec. 3	58·45
4	58·62
7	59·40
9	58·97
12	59·71
18	58·50
24	58·14

Reflexion.

Sept. 6	1. 23. 58·27

Polaris S.P.

Mar. 16	−1. 23. 57·39
29	58·49

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u Ceti.	Direct.
Jan. 14	80. 26. 57·13
Aug. 20	56·94
Nov. 11	55·79

16 Persei.	
Nov. 11	52. 13. 52·21
13	51·84

σ Arietis.	
Aug. 20	75. 28. 4·99

ρ^2 Arietis.	
Nov. 11	72. 12. 32·20

47 Cephei.	
Jan. 1	11. 6. 40·65
14	41·74
25	42·62
31	41·96
Dec. 5	42·80
	Reflexion.
Jan. 14	11. 6. 41·44

21 Persei.	
Nov. 13	58. 36. 12·43
15	11·97
16	11·42
19	12·12
28	12·93

Bradley 396.	
Jan. 1	9. 2. 57·24
31	59·54

α Ceti.	
Nov. 8	86. 26. 1·49
21	2·29
Dec. 30	1·05

β Persei.	Direct.
Jan. 1	49. 33. 31·66
28	33·44

ω Persei.	
Nov. 7	50. 53. 45·03
19	45·71

Bradley 431.	
Jan. 1	12. 45. 30·22
Nov. 28	31·11

δ Arietis.	
Jan. 14	70. 46. 42·90
28	43·41

Piazzi III. 5.	
Nov. 13	47. 59. 42·69
16	43·24
19	44·38
21	44·01
28	43·21

Bradley 448.	
Jan. 31	24. 50. 14·81
	Reflexion.
Jan. 31	24. 50. 15·59

Groombridge 639.	
Nov. 7	51. 12. 28·20
19	28·75
21	28·56
Dec. 9	27·85

Piazzi III. 23.	
Nov. 19	56. 15. 58·10
21	58·35
28	57·83
Dec. 2	58·88
9	58·47

l Persei.	Direct.
Jan. 1	47. 9. 12·56
14	13·17

α Persei.	
May 3	40. 36. 54·77

τ^2 Arietis.	
Nov. 7	69. 44. 9·07
11	8·89

o Tauri.	
July 24	81. 26. 26·96
Dec. 9	28·23

Piazzi III. 51.	
Jan. 1	30. 31. 33·70

σ Persei.	
Jan. 28	42. 27. 61·06
Nov. 13	59·41
19	60·06

Bradley 483.	
Nov. 13	42. 25. 58·58

s Tauri.	
Nov. 7	79. 7. 18·63
19	18·60

36 Persei.	
Jan. 1	44. 23. 47·56
25	48·55

f Tauri.	Direct.
Feb. 11	77. 31. 16·93
July 24	15·00
Nov. 11	15·92
Dec. 9	15·81

9 Tauri.	
Nov. 11	67. 13. 52·18

Piazzi III. 94.	
Jan. 1	27. 13. 3·01
25	5·94

Piazzi III. 104.	
Nov. 19	52. 51. 5·95
28	6·49
Dec. 4	7·18

δ Persei.	
Jan. 1	42. 38. 25·86
28	26·76
Dec. 5	26·48

o Persei.	
Nov. 13	56. 27. 51·41
19	51·10

o Persei.	
Jan. 31	58. 8. 1·64
	Reflexion.
Jan. 31	58. 8. 1·05

ν Persei.	
Dec. 4	47. 50. 40·13

Piazzi III. 138.	Direct.
Jan. 28	100. 54. 31·98

η Tauri.	
June 9	66. 18. 30·52
Dec. 5	31·58

e Tauri.	
Sept. 18	79. 16. 5·72

n Persei.	
Jan. 1	57. 19. 7·55
25	10·42
Nov. 13	8·29
19	8·56

ζ Persei.	
Jan. 25	58. 30. 51·49
28	50·99
Feb. 6	49·86

Piazzi III. 178.	
Dec. 4	29. 17. 4·61

A Persei.	
Jan. 1	39. 41. 33·78

32 Tauri.	
Nov. 13	67. 54. 26·58

ξ Persei.	
Nov. 19	54. 35. 37·90

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λ Tauri.	
	Direct.
Feb. 11	77° 53′ 16″·24
Aug. 21	15·46

Groombridge 750.	
Jan. 25	4. 48. 2·91

Groombridge 750 S.P.	
July 10	−4. 48. 3·21

A² Tauri.	
Nov. 13	68. 21. 8·92
Dec. 4	8·98

Piazzi III. 237.	
Nov. 13	68. 18. 22·71

ψ Tauri.	
Nov. 28	61. 21. 40·34
Dec. 2	40·78

Piazzi III. 249.	
Jan. 25	73. 1. 5·45
28	6·00
Feb. 6	4·21
Dec. 4	5·35
9	6·01

p Tauri.	
Nov. 13	63. 52. 7·77
28	7·86

Groombridge 779.	
Dec. 5	9. 30. 4·69

f Persei.	
	Direct.
Nov. 28	49° 51′ 22″·65
Dec. 4	22·81

Groombridge 804.	
Feb. 6	48. 11. 20·56
Nov. 28	21·84
Dec. 4	21·80

Piazzi IV. 31.	
Dec. 5	48. 31. 0·33

56 Tauri.	
Jan. 19	68. 33. 1·11

54 Persei.	
Jan. 28	55. 45. 26·79
Feb. 6	26·15
11	25·76

γ Tauri.	
Jan. 15	74. 41. 46·48

h Tauri.	
Jan. 25	76. 17. 17·73
Dec. 4	17·77

58 Tauri.	
Feb. 6	75. 13. 33·19
Nov. 28	33·69

χ Tauri.	
Dec. 5	64. 41. 14·83

55 Persei.	
	Direct.
Feb. 11	56° 10′ 48″·94

62 Tauri (1st Star).	
Nov. 28	66. 0. 32·41

62 Tauri (2d Star).	
Jan. 28	66. 0. 42·30

56 Persei.	
Feb. 11	56. 20. 58·54

r Tauri.	
Dec. 2	80. 51. 3·40
4	3·92

κ² Tauri.	
Jan. 28	68. 6. 25·75
Nov. 28	27·51
Dec. 5	26·22

70 Tauri.	
Jan. 19	74. 21. 54·75

π Tauri.	
Dec. 18	75. 35. 21·28

ε Tauri.	
Dec. 9	71. 7. 4·38
10	3·92

θ¹ Tauri.	
Dec. 5	74. 20. 9·11
18	7·25

b Tauri.	
	Direct.
Feb. 11	77° 14′ 58″·65
Nov. 28	60·58

Bradley 616.	
Feb. 23	47. 15. 11·08

e Persei.	
Dec. 5	49. 0. 42·96

Aldebaran.	
Feb. 20	73. 45. 39·12
May 3	38·46
4	38·03
7	39·62
June 9	38·79
Sept. 18	40·31
Dec. 9	40·20
10	38·11

d Tauri.	
Feb. 23	80. 6. 53·15

Bradley 635.	
Dec. 5	93. 53. 15·08

3 Camelopardali.	
Nov. 28	37. 11. 21·77

49 Eridani.	
Dec. 12	89. 16. 24·64

89 Tauri.	
Dec. 2	74. 14. 8·30

c^1 Tauri.	
	Direct.
Feb. 23	77° 45′ 31″·81
Dec. 18	29·72

σ^1 Tauri.	
Dec. 18	74. 27. 53·70

59 Persei.	
Feb. 8	46. 53. 29·60
23	30·57

4 Camelopardali.	
Dec. 5	33. 28. 59·79

56 Eridani.	
Feb. 20	98. 45. 15·80

Piazzi IV. 179.	
Dec. 5	71. 30. 31·27
12	30·87
18	30·07

α Camelopardali.	
Feb. 20	23. 53. 16·34

1 Aurigæ.	
Dec. 12	52. 44. 59·44
18	57·71

Bradley 661.	
Feb. 8	53. 35. 8·23

2 Aurigæ.	
Dec. 30	53. 31. 29·14

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Bradley 918.	
	Direct.
Mar. 5	54° 44′ 37″·39
Dec. 12	38·26

μ Geminorum.	
Jan. 18	67. 25. 16·04
Feb. 2	15·43
Mar. 27	15·98
Oct. 17	15·30
18	15·05
Dec. 12	17·11
16	14·54

14 Geminorum.	
Jan. 18	68. 17. 3·71
Mar. 6	3·94

Bradley 937.	
Oct. 18	55. 25. 45·23
Dec. 12	46·85
24	47·30

78 Orionis.	
Jan. 4	90. 11. 53·60

10 Monocerotis.	
Mar. 6	94. 40. 57·11

Piazzi VI. 136.	
Mar. 5	122. 29. 50·29

Piazzi VI. 126.	
Dec. 5	57. 27. 14·88

ξ¹ Canis Majoris.	
	Direct.
Jan. 18	113° 19′ 31″·28

Groombridge 1190.	
Dec. 5	51. 27. 3·64

23 Geminorum.	
Jan. 28	73. 5. 54·32

51 Aurigæ.	
Feb. 20	50. 29. 43·86

ξ² Canis Majoris.	
Mar. 5	112. 51. 42·08

52 Aurigæ.	
Oct. 18	49. 59. 10·70

50 Aurigæ.	
Dec. 10	47. 23. 52·82

53 Aurigæ.	
Feb. 23	60. 54. 17·05

γ Geminorum.	
Feb. 14	73. 29. 25·18
Mar. 27	24·74
April 24	24·81
Aug. 21	23·80
Dec. 12	24·28

54 Aurigæ.	
	Direct.
Feb. 2	61° 37′ 20″·52
Dec. 24	22·99
	Reflexion.
Dec. 24	61. 37. 22·08

25 Geminorum.	
Jan. 4	61. 41. 0·54
28	1·82
Dec. 5	2·30

26 Geminorum.	
Feb. 23	72. 13. 38·76
Dec. 3	38·76

ι Geminorum.	
Feb. 14	64. 44. 24·87

30 Geminorum.	
Jan. 11	76. 38. 28·11

56 Aurigæ.	
Dec. 3	46. 17. 37·96
10	38·21

Cephei 51.	
Dec. 6	2. 45. 28·76
24	29·67
	Reflexion.
Dec. 24	2. 45. 28·37

Cephei 51 S.P.	
July 13	−2. 45. 28·38
29	28·23
Aug. 10	29·00
19	27·64
20	27·53

Cephei 51 S.P. *continued.*	
	Direct.
Sept. 4	−2° 45′ 28″·78
Oct. 17	29·38
23	27·89

ξ Geminorum.	
Nov. 14	76. 57. 50·09

Sirius.	
Feb. 26	106. 32. 9·78
Mar. 4	10·33
27	9·47
June 10	9·52
11	8·23
Aug. 21	9·23
Dec. 6	9·13

16 Monocerotis.	
Jan. 4	81. 16. 28·00
28	29·30

11 Canis Majoris.	
Jan. 11	104. 17. 8·25
Mar. 1	7·94

12 Canis Majoris.	
Feb. 23	110. 52. 24·67

59 Aurigæ.	
Dec. 3	50. 58. 31·88

61 Aurigæ.	
Dec. 3	51. 20. 8·25

15 Lyncis.	
	Direct.
Jan. 11	31° 24′ 27″·47
Feb. 14	28·54
20	24·89
Mar. 5	26·62
27	25·89

39 Geminorum.	
Jan. 28	63. 44. 50·08
Feb. 2	48·60

ζ Geminorum.	
Jan. 1	69. 14. 14·91
18	15·65
Oct. 18	13·37
Nov. 14	15·66
	Reflexion.
Jan. 1	69. 14. 16·78

63 Aurigæ.	
Mar. 2	50. 27. 57·97
5	56·54

Piazzi VI. 292.	
Feb. 20	7. 20. 33·58
	Reflexion.
Feb. 20	7. 20. 34·96

δ Canis Majoris.	
Jan. 11	116. 11. 4·29

47 Geminorum.	
Jan. 18	62. 55. 41·28
Feb. 4	40·14
6	40·12
14	41·02

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Bradley 1048.	
	Direct.
Jan. 11	65° 3′ 52″·72

52 Geminorum.	
Jan. 28	64. 53. 13·49
Feb. 6	13·44

26 Canis Majoris.	
Dec. 13	115. 43. 18·60

Bradley 1061.	
Jan. 28	116. 48. 26·36
Feb. 4	26·95

Bradley 1054.	
Mar. 5	34. 28. 8·15

19 Lyncis.	
Mar. 5	34. 28. 18·83

δ Geminorum.	
Jan. 18	67. 46. 32·14
Feb. 20	32·20
Mar. 1	32·38
15	32·82
Oct. 18	30·29
	Reflexion.
Feb. 20	67. 46. 33·99
Mar. 1	32·51

29 Canis Majoris.	
Jan. 28	114. 19. 1·91

65 Aurigæ.	
	Direct.
Feb. 6	52° 59′ 33″·07
Mar. 2	32·62

30 Canis Majoris.	
Feb. 14	114. 42. 49·49

56 Geminorum.	
Mar. 15	69. 18. 28·39

A Geminorum.	
Jan. 11	64. 41. 48·46
25	48·55
28	48·44
Feb. 2	47·34

58 Geminorum.	
Mar. 2	66. 48. 5·13

21 Lyncis.	
Dec. 13	40. 31. 42·12

61 Geminorum.	
Mar. 15	69. 28. 46·79

ρ Geminorum.	
Feb. 14	57. 57. 13·99

Lalande 14524.	
Jan. 28	81. 13. 27·85

68 Geminorum.	
Dec. 13	73. 53. 24·11

Castor.	
	Direct.
Sept. 1	57° 49′ 22″·83

δ² Canis Minoris.	
Feb. 4	86. 25. 42·47

Bradley 1090.	
Mar. 15	58. 45. 11·81
21	11·79

δ³ Canis Minoris.	
Jan. 28	86. 20. 32·71
Feb. 14	31·71

υ Geminorum.	
Jan. 19	62. 48. 42·18
Mar. 5	41·99
	Reflexion.
Mar. 5	62. 48. 43·10

70 Geminorum.	
Feb. 6	54. 39. 24·82
Mar. 21	23·96

o Geminorum.	
Nov. 19	55. 6. 48·96
Dec. 13	48·77

Piazzi VII. 161.	
Jan. 4	65. 28. 43·91

Bradley 1105.	
Mar. 28	84. 37. 38·18

f Geminorum.	
	Direct.
Mar. 15	72° 1′ 32″·30

Procyon.	
Feb. 28	84. 26. 11·61
June 10	12·05
11	10·61
22	12·71
25	11·76
26	11·88
Aug. 12	11·60
21	11·90
Sept. 1	11·70

Bradley 1107.	
Feb. 4	84. 27. 55·07
Mar. 5	53·38
21	56·40

Bradley 1104.	
Nov. 19	39. 15. 18·28
Dec. 13	19·93

c Geminorum.	
Jan. 11	63. 54. 7·96

κ Geminorum.	
Feb. 6	65. 17. 9·04
14	10·59

Pollux.	
June 11	61. 39. 17·46
25	17·63
26	19·10
Aug. 21	18·63
Sept. 1	19·19

11 Canis Minoris.	
	Direct.
Feb. 4	78° 54′ 36″·83
Mar. 15	36·78

2 Puppis (1st Star).	
Mar. 21	104. 21. 54·39

2 Puppis (2d Star).	
Mar. 5	104. 22. 9·95
21	10·64

4 Puppis.	
Feb. 6	104. 14. 32·00
Mar. 5	31·60

5 Puppis.	
Feb. 28	101. 52. 5·37

6 Puppis.	
Feb. 4	106. 53. 30·36
Mar 28	29·46

Groombridge 1374.	
Jan. 28	15. 43. 58·67
	Reflexion.
Jan. 28	15. 43. 57·48

ζ Canis Minoris.	
Feb. 28	87. 53. 44·21
Mar. 15	44·33

8 Puppis.	
Mar. 21	102. 28. 51·99

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Piazzi IX. 221.

	Direct.
April 11	59° 43′ 9″·03
24	8·36
May 3	8·35

π Leonis.

May 11	81. 19. 8·30

20 Leonis Minoris.

Mar. 26	57. 25. 25·15
28	24·05
April 2	25·90
12	25·29
	Reflexion.
April 2	57. 25. 25·95
12	24·43

Piazzi IX. 230.

April 5	67. 24. 39·01
8	38·22
9	39·31
11	39·05
15	39·06

21 Leonis Minoris.

Feb. 25	54. 6. 29·50
Mar. 26	30·20
28	29·06
April 23	30·18

Regulus.

Feb. 28	77. 23. 1·47
May 11	2·58
Sept. 6	2·49
8	2·36
17	3·51
29	3·13
30	3·00
Oct. 4	1·54
16	2·45

Bradley 1408.

	Direct.
Mar. 2	70° 49′ 1″·51
25	1·56

Piazzi IX. 254.

April 5	48. 41. 9·77
12	9·93
15	10·44
27	9·56
May 3	9·48

Bradley 1416.

Mar. 2	57. 54. 59·95

20 Sextantis.

Mar. 26	96. 43. 37·60

22 Leonis Minoris.

April 4	57. 52. 22·94
8	22·13

23 Leonis Minoris.

Mar. 25	60. 1. 41·41
26	41·09
April 4	41·05
5	41·20
12	41·33
15	41·52

24 Leonis Minoris.

Mar. 27	60. 39. 11·97
	Reflexion.
Mar. 27	60. 39. 12·05

γ¹ Leonis.

Sept. 17	69. 29. 12·13
30	13·69
Oct. 4	11·36

Bradley 1433.

	Direct.
April 8	48° 5′ 47″·90
15	48·92
23	48·52
27	47·14
May 3	47·98

μ Ursæ Majoris.

Mar. 25	47. 49. 58·61

μ Ursæ Majoris S.P.

Oct. 26	-47. 50. 1·01

27 Leonis Minoris.

April 5	55. 25. 18·09

28 Leonis Minoris.

April 4	55. 36. 35·35
5	34·93
30	35·48

29 Leonis Minoris.

April 8	53. 53. 55·01
27	55·21

30 Leonis Minoris.

Mar. 2	55. 31. 39·21
26	39·07
	Reflexion.
Mar. 2	55. 31. 39·81

Bradley 1449.

Mar. 6	95. 45. 4·92

Groombridge 1646.

May 3	40. 30. 22·02
11	23·10

β Leonis Minoris.

	Direct.
Mar. 25	52° 36′ 44″·43

Bradley 1446.

Mar. 27	13. 36. 13·23
	Reflexion.
Mar. 27	13. 36. 12·35

33 Leonis Minoris.

Mar. 2	56. 56. 18·66
25	19·84
April 4	20·38
23	20·25
30	20·07
May 3	20·79

ρ Leonis.

May 11	80. 0. 35·05

49 Leonis.

April 8	80. 39. 48·52
15	48·87

Bradley 1472.

Mar. 26	112. 29. 26·52
April 23	27·80
27	27·45

35 Leonis Minoris.

Mar. 25	52. 59. 4·88
April 30	4·11
May 3	4·64

36 Leonis Minoris.

	Direct.
Mar. 26	55° 13′ 57″·09
27	57·07
April 30	56·89
May 3	57·32
11	57·16

Groombridge 1671.

Mar. 2	20. 42. 10·95
	Reflexion.
Mar. 2	20. 42. 11·90

Piazzi X. 131.

April 8	57. 36. 28·90
30	29·06
May 3	29·19
11	29·59

39 Ursæ Majoris.

Dec. 22	32. 6. 12·60

40 Leonis Minoris.

April 23	62. 58. 36·90
27	37·13

Bradley 1485.

April 8	66. 6. 57·98

Bradley 1489.

Mar. 26	112. 51. 12·24
27	14·21

42 Leonis Minoris.

April 30	58. 37. 5·10

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43 Leonis Minoris.	Direct.
April 8	59° 52′ 50″·96
May 3	52·09

l Leonis.	
Mar. 25	78. 45. 6·93
May 11	6·82

39 Sextantis.	
Mar. 26	98. 23. 49·81
Dec. 22	50·09

40 Sextantis.	
Mar. 2	93. 19. 16·31

44 Leonis Minoris.	
April 27	61. 19. 28·20
30	29·16
May 3	29·20

43 Ursæ Majoris S.P.	
Aug. 2	−32. 42. 51·52
6	53·51
12	51·21
13	52·07

b^2 Hydræ.	
Mar. 2	107. 37. 40·25

48 Leonis Minoris.	
Mar. 25	63. 48. 8·00
26	6·41
April 29	7·45

47 Leonis Minoris.	Direct.
Mar. 27	55° 15′ 21″·50
April 27	21·23
30	22·21

Bradley 1514.	
April 8	55. 46. 61·68
23	60·93
May 3	59·29

56 Leonis.	
Mar. 2	83. 6. 20·15

50 Leonis Minoris.	
April 8	63. 47. 26·03
30	25·27
May 11	24·62

49 Ursæ Majoris.	
Mar. 25	50. 4. 27·03
27	26·71
April 8	27·13
30	26·95
May 3	27·19

Bradley 1521.	
May 4	13. 50. 37·36
Dec. 22	36·02

d Leonis.	
April 14	85. 40. 9·31

b Leonis.	
April 23	69. 6. 26·56
27	25·47

α Ursæ Majoris.	Direct.
June 4	27° 31′ 53″·89
Aug. 22	54·99
Oct. 16	54·35
17	53·58

α Ursæ Majoris S.P.	
Sept. 28	−27. 31. 54·10
Oct. 26	53·18
Nov. 6	53·35
8	54·54
21	54·04
23	54·47

Lalande (F.) 1729.	
Mar. 16	1. 38. 20·44
April 3	20·54
29	21·57

Lalande (F.) 1729 S.P.	
Sept. 20	−1. 38. 19·02

51 Ursæ Majoris.	
Mar. 25	51. 2. 34·17

Piazzi X. 228.	
Mar. 2	51. 2. 13·56
25	14·37

χ Leonis.	
April 14	81. 56. 45·02

64 Leonis.	
April 8	65. 57. 28·94
23	28·09

67 Leonis.	Direct.
May 3	64° 37′ 19″·03
4	20·15

Piazzi X. 252.	
April 27	52. 58. 11·39

δ Leonis.	
Mar. 25	68. 44. 53·55
April 3	52·70
Oct. 8	52·12
15	51·52
16	53·15
17	51·93
Nov. 19	52·28

Piazzi XI. 22.	
April 27	76. 25. 41·77
29	42·64
May 3	42·64
4	42·86
6	40·92

σ Leonis.	
Mar. 25	83. 14. 33·21
April 3	32·61
May 4	33·21
Dec. 17	29·98

Piazzi XI. 43.	
Mar. 15	24. 56. 32·80
	Reflexion.
Mar. 15	24. 56. 32·27

71 Leonis.	
April 23	71. 50. 0·73
30	1·14
May 3	1·03
4	1·05
6	0·82

Piazzi XI. 60.	Direct.
April 23	77° 50′ 22″·01
27	21·73

57 Ursæ Majoris.	
May 3	49. 55. 53·49
6	52·68
Dec. 22	52·20

85 Leonis.	
April 27	73. 51. 7·91
29	8·36
30	9·13
May 4	9·93

λ Draconis.	
Mar. 26	19. 56. 7·05
April 3	6·17
	Reflexion.
Mar. 26	19. 56. 7·27

86 Leonis.	
May 3	70. 51. 28·72
4	29·50

88 Leonis (1st Star).	
April 23	74. 53. 28·91

88 Leonis (2nd Star).	
April 23	74. 53. 41·18
27	40·97
29	41·81

Radcliffe 2705 S.P.	
Nov. 11	−3. 38. 58·97
23	59·85

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ι Virginis.	Direct.
May 8	78° 19′ 31″·49
Nov. 27	30·08
Dec. 1	29·62
15	31·18

14 Canum Venaticûm.	
May 3	53. 29. 18·89

41 Comæ.	
April 29	61. 39. 38·34

Bradley 1745.	
May 6	61. 43. 50·64
7	48·96

θ Virginis.	
Dec. 19	94. 49. 41·01

Piazzi XII. 283.	
May 7	72. 26. 28·61
18	29·36
22	28·05

18 Canum Venaticûm.	
May 9	48. 29. 58·29
17	58·27
23	57·72

54 Virginis (1st Star).	
Mar. 28	108. 7. 9·10
Dec. 15	9·95

54 Virginis (2nd Star).	
Mar. 28	108. 7. 5·85
Dec. 15	5·95

19 Canum Venaticûm.	Direct.
April 2	48° 26′ 30″·13
May 23	29·30
Dec. 15	29·82

e Virginis.	
May 4	79. 52. 47·17
6	48·40
7	47·77

Piazzi XIII. 41.	
May 4	75. 37. 25·39
7	23·35
8	23·89
9	24·23

23 Canum Venaticûm.	
Dec. 15	49. 8. 62·30
19	59·47

64 Virginis.	
April 2	84. 8. 48·59

63 Virginis.	
May 8	107. 2. 16·38

65 Virginis.	
May 6	94. 13. 37·84

66 Virginis.	
May 7	94. 28. 3·91
22	3·04

Spica.	Direct.
April 17	100° 27′ 58″·90
29	57·03
May 2	58·67
June 25	57·80
Nov. 1	58·56
4	57·09
26	58·46
27	58·09
28	56·54
Dec. 1	56·58
12	59·21
19	58·55

Groombridge 2007.	
May 22	4. 33. 0·28

Piazzi XIII. 109.	
April 9	16. 55. 1·47
	Reflexion.
April 9	16. 55. 1·24

B. F. 1857 (1st Star).	
April 8	65. 4. 46·27

B. F. 1857 (2nd Star).	
April 8	65. 4. 33·44
29	34·31
May 2	34·99
7	33·10
8	33·19

Piazzi XIII. 112.	
May 27	118. 52. 46·96

Piazzi XIII. 133.	
April 27	10. 40. 8·10
May 3	7·88
11	7·70

Piazzi XIII. 133—*cont.*	Reflexion.
April 27	10° 40′ 8″·18
May 3	7·13

h Virginis.	Direct.
April 17	99. 28. 43·25

ζ Virginis.	
May 23	89. 54. 51·34

1 Boötis.	
April 9	69. 22. 13·67
May 8	14·29
21	13·99
	Reflexion.
April 9	69. 22. 16·89
May 8	14·14

m Virginis.	
May 2	98. 1. 50·78

2 Boötis.	
April 29	66. 49. 45·94

B. F. 1883.	
April 8	66. 37. 40·74
May 1	41·50

i Centauri.	
May 27	122. 22. 10·24

τ Boötis.	Direct.
April 27	71° 52′ 43″·96
May 3	44·61
11	44·23
23	43·50
	Reflexion.
April 27	71. 52. 44·06
May 3	45·71
11	45·51
23	45·23

Groombridge 2053.	
June 1	11. 16. 9·07

η Ursæ Majoris.	
May 7	40. 1. 19·05
Oct. 22	23·72
Nov. 1	19·79
4	18·93
6	20·05
27	19·29
Dec. 1	18·53

η Ursæ Majoris S.P.	
Jan. 8	40. 1. 21·70
Nov. 28	20·62
Dec. 3	17·32
12	18·45
24	20·87

k^1 Centauri.	
May 27	122. 20. 0·17

k^2 Centauri.	
May 27	122. 20. 1·69

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B. F. 1907.

	Direct.
April 8	54° 53′ 45″·87
May 1	45·73
2	46·04
7	45·26
11	44·65

Piazzi XIII. 228.

May 21	72. 36. 43·85

Piazzi XIII. 263.

June 1	6. 34. 50·71

i Draconis.

May 8	24. 37. 9·07
	Reflexion.
May 8	24. 37. 8·57

η Boötis.

Aug. 12	70. 56. 2·94
22	4·35
Nov. 1	4·06
4	3·97
6	3·99
26	3·03
27	6·28
Dec. 1	2·92

9 Boötis.

May 1	61. 51. 17·88

10 Boötis.

April 27	67. 39. 13·00
May 1	14·22

11 Boötis.

May 2	61. 58. 11·33

94 Virginis.

	Direct.
June 11	98° 15′ 20″·43

α Draconis.

May 23	24. 59. 15·68
Aug. 22	15·66
Nov. 1	16·10
4	15·12
27	15·08
Dec. 1	15·74
	Reflexion.
May 23	24. 59. 16·02

Piazzi XIII. 316.

April 27	45. 30. 41·74
May 1	43·37
2	42·70
3	42·82
10	42·34

κ Virginis.

Feb. 22	99. 39. 11·54

3 Ursæ Minoris.

May 21	14. 46. 34·68
June 1	32·85

ι Virginis.

May 2	95. 21. 51·26

Arcturus.

Aug. 22	70. 7. 26·09
Sept. 2	24·29
Oct. 3	26·27
8	26·55
16	25·52
23	26·62
26	26·28
31	25·10

Arcturus—*continued.*

	Direct.
Nov. 1	70° 7′ 26″·07
4	25·08
6	26·22
7	25·76
26	25·47
27	25·83
Dec. 1	25·01

Groombridge 2091.

April 29	19. 56. 32·96
	Reflexion.
April 29	19. 56. 32·56

Bradley 1848.

May 1	70. 28. 4·16
2	3·74
3	3·66
7	2·94
8	2·53
10	3·07

λ Virginis.

Feb. 22	102. 45. 25·92
23	25·73

A Boötis.

April 27	53. 52. 30·87
May 1	33·05
7	34·40
11	32·17
21	31·91

Bradley 1856.

May 29	38. 4. 35·84

Groombridge 2100.

May 2	50. 35. 36·97
3	36·59
7	36·83
10	36·13
11	36·65

***f* Boötis.**

	Direct.
April 29	70° 10′ 25″·34
	Reflexion.
April 29	70. 10. 27·05

52 Hydræ.

April 27	118. 53. 31·67
May 28	32·70

***θ* Boötis.**

May 3	37. 31. 58·22
29	61·35

106 Virginis.

May 8	96. 18. 6·25

Groombridge 2116.

May 1	47. 36. 10·42
3	9·41
10	7·84

***ρ* Boötis.**

June 11	59. 2. 35·28
Nov. 4	36·63
26	36·28
27	32·93
	Reflexion.
June 11	59. 2. 37·33

5 Ursæ Minoris.

May 8	13. 42. 45·87
29	45·22
June 1	45·70

Groombridge 2135.

May 3	45. 46. 58·83
10	57·80

Piazzi XIV. 150.

	Direct.
April 2	124° 35′ 57″·67
May 22	55·83
24	52·80
28	50·29
June 1	49·49

***ι* Boötis.**

May 3	72. 28. 16·02
10	15·41

***ε* Boötis.**

Feb. 23	62. 21. 47·70
May 29	48·75
Oct. 23	50·22
26	48·68
28	47·96
Nov. 6	49·39
26	48·42
27	49·30
28	48·66
	Reflexion.
May 29	62. 21. 48·44

α^2 Libræ.

April 2	105. 29. 14·10
May 17	12·90

*** R.A. 14h. 45m. (15s.)**

May 3	52. 10. 51·56
22	50·72
28	51·21
29	50·53

ξ^1 Libræ.

April 2	101. 21. 14·00

Piazzi XIV. 204.

June 1	123. 18. 46·58

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A Draconis.	
	Direct.
June 26	20. 56. 38″·49
July 10	40·03
	Reflexion.
June 26	20. 56. 39·60
July 10	38·85

ζ Ophiuchi.	
Sept. 19	100. 17. 43·40

24 Scorpii.	
May 18	107. 28. 53·73

Lacaille 6950.	
May 29	121. 50. 62·21
June 10	56·10
11	61·47

ζ Herculis.	
May 30	58. 9. 16·10
31	15·74
Nov. 2	16·61
28	14·93
	Reflexion.
May 30	58. 9. 16·69
31	16·67

* R. A. 16h. 38m. (19s.)	
May 28	53. 14. 22·23
June 10	21·67
14	22·17
26	22·17

η Herculis.	
Aug. 9	50. 49. 23·51
Sept. 19	23·42
27	24·54
Nov. 2	22·94
28	23·38

46 Herculis.	
	Direct.
May 28	61. 23. 50″·06
June 6	50·01

ε Scorpii.	
May 29	124. 2. 59·51
June 11	58·57

Groombridge 2377.	
Sept. 19	32. 58. 47·16

Groombridge 2376.	
May 31	47. 31. 20·90
June 22	22·18
26	21·46
July 13	23·91
18	20·64

Var. (S) Herculis.	
June 11	74. 49. 56·25
14	53·97

51 Herculis.	
May 31	65. 7. 3·99
June 22	5·34

22 Ophiuchi.	
May 28	113. 17. 27·88

Lacaille 7047.	
May 29	122. 17. 4·47

Piazzi XVI. 232.	
July 13	106. 35. 30·07

24 Ophiuchi.	
	Direct.
May 30	112. 56. 7″·41
June 10	9·18

κ Ophiuchi.	
Sept. 19	80. 24. 57·09
27	58·47

Bradley 2153.	
May 29	114. 53. 14·77

57 Herculis.	
May 28	64. 26. 23·87

ε Herculis.	
June 4	58. 52. 33·66
26	32·96
July 10	33·04
	Reflexion.
June 4	58. 52. 32·74
26	33·43
July 10	35·03

k Scorpii.	
May 29	123. 55. 56·36
30	52·13

d Herculis.	
June 22	56. 14. 15·90
July 13	15·33
18	14·13

Bradley 2162.	
May 28	111. 22. 35·18
June 10	38·23
24	36·30

ε Ursæ Minoris.	
	Direct.
Sept. 27	7. 44. 56″·17

ε Ursæ Minoris S.P.	
Dec. 18	−7. 44. 55·73

η Ophiuchi.	
June 24	105. 33. 27·39
July 13	25·64
Sept. 5	26·67
19	26·09
27	28·48

Piazzi XVII. 3.	
May 28	53. 53. 24·53
June 21	25·55

ζ Draconis.	
June 10	24. 7. 17·69
July 24	17·17
Sept. 19	17·79
Oct. 17	16·91
Nov. 28	17·67
	Reflexion.
June 10	24. 7. 17·26
July 24	17·13

ξ Ophiuchi.	
Sept. 5	110. 58. 1·02

e Herculis.	
May 30	52. 34. 2·61
June 14	3·57

ρ Serpentis.	
	Direct.
June 16	102. 42. 33″·44
Aug. 9	33·15
10	32·30

70 Herculis.	
June 10	65. 21. 57·99
24	58·37
Sept. 19	58·45
	Reflexion.
June 10	65. 21. 58·71

Groombridge 2435.	
May 30	49. 53. 34·88
June 21	35·36
24	35·85
26	35·19
July 18	34·73

b Ophiuchi.	
June 22	114. 2. 60·86
July 16	58·77

Piazzi XVII. 109.	
June 4	69. 48. 13·62
10	12·98
July 24	12·51
	Reflexion.
July 24	69. 48. 13·33

β Draconis.	
Sept. 2	37. 35. 55·97
19	56·20
Oct. 17	56·00

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α Ophiuchi.

Direct.

July 24	77° 20′ 25″·74
Sept. 20	25·64
Oct. 17	26·34
Nov. 27	26·40
28	28·28
29	26·49

Groombridge 2444.

June 4	48. 39. 40·06
Aug. 24	38·84
27	39·66

ξ Serpentis.

July 13	105. 18. 41·17
14	44·27
Aug. 9	42·83
10	43·58

Piazzi XVII. 167.

June 26	122. 8. 20·48

W. B. XVII. 636.

July 13	102. 50. 30·25

o Serpentis.

July 14	102. 48. 4·34

Piazzi XVII. 196.

June 10	58. 43. 30·53
21	30·90
25	30·69
July 16	31·40

58 Ophiuchi.

Direct.

May 30	111° 36′ 53″·98
June 4	55·16
14	53·79

β Ophiuchi.

Feb. 6	85. 22. 29·46
Aug. 27	28·93
Sept. 20	28·38
Oct. 17	28·05
Nov. 27	28·86
28	30·04

ω Draconis.

Aug. 27	21. 10. 51·06
Sept. 19	51·43

84 Herculis.

May 21	65. 36. 44·94
June 4	45·11
10	45·13

Oeltz. Arg. 17415.

June 25	68. 26. 54·33

μ Herculis.

July 12	62. 11. 58·43
Nov. 27	59·03
28	60·95
	Reflexion.
July 12	62. 11. 57·42

z Herculis.

May 30	41. 34. 7·43
June 25	7·63

Piazzi XVII. 281.

Direct.

June 16	105° 47′ 9″·05
17	7·60

4 Sagittarii.

Aug. 24	113. 48. 2·28
27	3·59

5 Sagittarii.

May 29	114. 16. 11·02

γ Draconis.

Nov. 27	38. 29. 39·32
29	38·49

Piazzi XVII. 323.

July 16	110. 43. 59·31

7 Sagittarii.

May 29	114. 16. 40·34
July 14	40·87

68 Ophiuchi.

June 26	88. 41. 18·26

95 Herculis (1st Star).

June 25	68. 24. 4·55

95 Herculis (2nd Star).

June 25	68. 24. 5·41

96 Herculis.

June 17	69. 9. 52·73
26	51·11

ψ² Draconis.

Direct.

July 24	17° 58′ 58″·85
31	59·22
Aug. 2	57·93

98 Herculis.

May 21	67. 47. 28·50
Aug. 10	29·58

72 Ophiuchi.

Mar. 15	80. 27. 8·85
Oct. 3	9·17
8	9·69
17	8·84
23	9·97

Piazzi XVII. 367.

Sept. 4	120. 44. 46·36

100 Herculis (1st Star).

June 26	63. 55. 13·18

100 Herculis (2nd Star).

June 26	63. 54. 59·28

101 Herculis.

July 13	69. 58. 24·50
16	24·21

μ¹ Sagittarii.

May 21	111. 5. 25·29
June 17	24·93
Aug. 10	26·44

Groombridge 2533.

Direct.

June 24	47° 53′ 5″·06
July 13	4·33
16	4·68
24	2·81
31	4·40

36 Draconis.

June 14	25. 38. 51·36
Aug. 12	51·76
	Reflexion.
June 14	25. 38. 49·32
Aug. 12	50·45

106 Herculis.

July 13	68. 5. 34·94
16	34·74

δ Ursæ Minoris.

July 29	3. 23. 42·89
Aug. 10	42·11
19	42·66
24	42·44
Sept. 4	43·02
Oct. 17	42·60
23	42·13
	Reflexion.
Aug. 24	3. 23. 43·10

109 Herculis.

Aug. 2	68. 17. 18·52
Sept. 21	18·54
25	18·98
Oct. 17	17·95

Groombridge 2563.

Aug. 19	47. 36. 12·98
Sept. 25	12·77

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θ Cephei.

	Direct.
July 30	27° 27′ 8″·32
Sept. 20	9·09
	Reflexion.
July 30	27. 27. 8·86
Sept. 20	8·36

θ Cephei S.P.

Feb. 28	−27. 27. 8·12

Bradley 2673.

Aug. 22	17. 55. 8·38
Sept. 3	9·54
6	8·58
16	9·89
24	9·77
25	7·08

τ² Capricorni.

Aug. 13	105. 25. 8·88
Nov. 3	7·85

73 Draconis.

Oct. 10	15. 30. 6·40

49 Cygni.

Sept. 3	58. 9. 51·00
16	50·60
24	50·82

α Cygni.

Sept. 25	45. 11. 35·88
Oct. 5	36·81
28	37·62
Dec. 2	37·43

α Cygni S.P.

	Direct.
Mar. 5	−45° 11′ 36″·68

α Microscopii.

Oct. 10	124. 16. 7·48
28	5·30

η Cephei.

Sept. 25	28. 40. 36·61
Oct. 5	36·67
Dec. 2	37·75

η Cephei S.P.

Mar. 5	−28. 40. 37·09

32 Vulpeculæ.

July 30	62. 26. 49·04
Aug. 2	47·53
10	49·72
22	49·05
Sept. 20	48·80
	Reflexion.
July 30	62. 26. 48·05
Aug. 2	49·13
10	49·00
22	49·36
Sept. 20	49·83

76 Draconis.

Aug. 23	7. 57. 50·84
Nov. 27	49·28
	Reflexion.
Aug. 23	7. 57. 52·77

γ Cygni.

Sept. 20	49. 20. 36·57
24	36·79

Bradley 2749.

	Direct.
Sept. 25	9° 56′ 52″·79
30	52·63

f¹ Cygni.

Oct. 5	42. 59. 47·98

f¹ Cygni S.P.

Feb. 28	−42. 59. 47·12
Mar. 26	49·70

θ Capricorni.

Aug. 13	107. 45. 33·58
Oct. 7	34·37
8	33·92
Dec. 2	32·29

ξ Cygni.

Aug. 27	46. 36. 6·74
Sept. 30	5·34
Oct. 28	4·57
Nov. 2	5·25
Dec. 2	5·21

61 Cygni (1st Star).

Sept. 3	51. 54. 12·51
Nov. 27	11·07
	Reflexion.
Sept. 3	51. 54. 11·25

61 Cygni (2nd Star).

Nov. 27	51. 54. 18·18

ν Aquarii.

	Direct.
Oct. 7	101° 54′ 29″·86
8	30·82

ζ Cygni.

Aug. 13	60. 19. 2·31
Oct. 1	2·35
	Reflexion.
Aug. 13	60. 19. 1·01
Oct. 1	2·45

77 Draconis.

Aug. 2	12. 24. 49·86
10	49·36
Sept. 24	49·88
	Reflexion.
Aug. 2	12. 24. 49·28
10	48·14
Sept. 24	47·47

α Equulei.

Aug. 26	85. 17. 60·64
Sept. 20	59·70

ι Capricorni.

Sept. 10	107. 23. 56·68
Nov. 5	56·83
Dec. 2	55·02

α Cephei.

Aug. 22	27. 58. 38·92
27	38·16
Sept. 3	38·78
20	37·99
25	37·74
Oct. 1	38·87
Nov. 27	38·71
Dec. 2	38·76

α Cephei *continued.*

	Reflexion.
Aug. 22	27° 58′ 38″·03
27	38·21
Sept. 3	38·28
Oct. 1	38·24
Nov. 27	37·96

1 Pegasi.

	Direct.
Aug. 26	70. 45. 45·83

Bradley 2832.

Aug. 20	6. 18. 20·90

g¹ Cygni.

Sept. 30	44. 2. 41·24

Groombridge 3548.

Oct. 7	3. 31. 7·45

β¹ Cephei.

Sept. 20	20. 1. 27·29
Nov. 5	26·30
27	25·91

β² Cephei.

Sept. 18	20. 1. 21·77
20	22·99
30	22·03
Oct. 10	22·82
Nov. 2	21·71
5	21·60
27	21·54
	Reflexion.
Oct. 10	20. 1. 21·17

7 Piscis Australis.

Aug. 22	123. 38. 27·94

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72 Cygni.	
	Direct.
Oct. 1	52° 3′ 40″·76

ε Capricorni.	
Aug. 24	110. 3. 34·99
27	37·57
Sept. 3	37·35
20	37·00

γ Capricorni.	
June 21	107. 15. 39·19
Aug. 6	40·99
Sept. 10	41·19
Nov. 5	42·00

42 Capricorni.	
Aug. 24	104. 38. 20·10
27	21·84
Sept. 3	20·64

Bradley 2854.	
Aug. 22	19. 17. 30·64
Sept. 7	28·35
13	29·58
Nov. 11	28·96
	Reflexion.
Nov. 11	19. 17. 29·48

Bradley 2841.	
Sept. 18	49. 27. 7·45
20	7·44
28	8·35

Bradley 2833.	
Oct. 1	99. 38. 45·57

c^1 Capricorni.	
	Direct.
Aug. 22	99° 41′ 29″·64

λ Capricorni.	
Oct. 8	101. 58. 39·79

δ Capricorni.	
Aug. 24	106. 43. 44·63

Bradley 2851.	
Aug. 20	65. 1. 41·00

11 Cephei.	
Aug. 27	19. 18. 3·04
Sept. 18	1·85
25	1·30
30	2·50
Nov. 2	2·81
5	2·49
	Reflexion.
Nov. 2	19. 18. 2·50

ν Cephei.	
Sept. 3	29. 29. 32·94
20	31·93
30	32·09
Dec. 2	32·54

μ Capricorni.	
Oct. 8	104. 10. 34·72
Dec. 2	32·14
3	33·88

16 Pegasi.	
Sept. 10	64. 41. 57·68
Oct. 5	57·81
10	59·53

16 Pegasi *continued.*	
	Direct.
Nov. 11	64° 41′ 58″·57
27	58·52
	Reflexion.
Sept. 10	64. 41. 58·43
Oct. 5	59·54
10	57·94
Nov. 11	59·32

79 Draconis.	
Aug. 6	16. 55. 37·08
27	36·05
Sept. 3	36·61
25	34·76
28	36·17
Oct. 7	34·03
Nov. 28	36·23
	Reflexion.
Oct. 7	16. 55. 35·30
Nov. 28	35·13

η Piscis Australis.	
Aug. 20	119. 5. 25·14
22	27·23
24	25·07
Sept. 20	24·35
28	26·70
30	23·23
Oct. 1	23·56
17	26·12
28	22·20
Nov. 2	26·90
6	24·62

Bradley 2884.	
Aug. 6	32. 58. 39·53

16 Cephei.	
Sept. 10	17. 27. 10·32
Oct. 5	9·31
8	11·13

16 Cephei *continued.*	
	Reflexion.
Sept. 10	17° 27′ 9″·08
Oct. 5	11·58
8	10·27

α Aquarii.	
	Direct.
Aug. 23	90. 57. 52·13
Oct. 26	53·03
Nov. 6	51·95

ι Aquarii.	
Dec. 2	104. 30. 46·64
3	48·08

15 Cephei.	
Aug. 22	30. 49. 45·89
Sept. 7	46·27

ξ^1 Cephei.	
Nov. 2	26. 1. 7·82
5	8·49

ξ^1 Cephei S.P.	
April 30	−26. 1. 8·05

ξ^2 Cephei.	
Nov. 2	26. 1. 9·72
5	10·70

ξ^2 Cephei S.P.	
April 30	−26. 1. 10·21

μ Piscis Australis.	
	Direct.
Aug. 20	123° 38′ 10″·12
24	13·07
Sept. 13	11·17

ι Pegasi.	
Aug. 27	65. 18. 11·93
Nov. 27	12·23
28	13·64
	Reflexion.
Aug. 27	65. 18. 11·65
Nov. 27	12·94
28	13·19

20 Cephei.	
Sept. 3	27. 51. 46·56
6	45·29

35 Aquarii.	
Aug. 9	109. 10. 10·28

15 Piscis Australis.	
Aug. 24	123. 11. 61·87
Sept. 5	59·73

Bradley 2904.	
Sept. 20	98. 10. 59·33

Groombridge 3707.	
Aug. 10	7. 46. 16·20
22	15·59
Sept. 18	16·98

Bradley 2935.	
Aug. 10	7. 46. 13·03
22	13·53
Sept. 18	14·18

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39 Aquarii.	
	Direct.
Aug. 23	104° 50′ 50″·96

Bradley 2938.	
Aug. 27	27. 29. 49·50

θ Aquarii.	
June 21	98. 26. 38·51
Sept. 12	38·39
Nov. 5	38·28
6	39·31

Bradley 2942.	
Aug. 20	17. 21. 11·00
22	10·92

32 Pegasi.	
Aug. 6	62. 20. 17·11
27	19·32
Oct. 1	18·32
3	19·02
7	18·60
8	18·17
28	18·04
Nov. 2	18·16
13	18·68
	Reflexion.
Aug. 6	62. 20. 19·60
Oct. 7	17·33
8	18·04
28	18·86
Nov. 2	18·36

β Lacertæ.	
Sept. 7	38. 26. 10·68
16	12·09
18	11·62

σ Aquarii.	
	Direct.
Sept. 12	101° 21′ 28″·08
Oct. 10	25·95
Nov. 5	26·07
6	26·68

β Piscis Australis.	
Sept. 20	123. 1. 39·02
Oct. 3	35·16
26	40·31

δ¹ Cephei.	
Sept. 18	32. 16. 33·15

δ² Cephei.	
Sept. 18	32. 15. 53·08
Nov. 13	53·94

28 Cephei.	
Oct. 28	11. 53. 32·18
Nov. 21	31·64
	Reflexion.
Oct. 28	11. 53. 30·71

Groombridge 3804.	
July 23	50. 54. 12·17
Sept. 16	12·67
19	12·27
27	14·75
28	13·09
Oct. 1	12·87
	Reflexion.
July 23	50. 54. 12·48
Sept. 28	12·94

η Aquarii.	
Nov. 13	90. 48. 7·96

ρ Cephei.	
	Direct.
Nov. 21	11° 51′ 30″·10

Radcliffe 5776.	
Sept. 20	2. 35. 41·59

Radcliffe 5776 S.P.	
Dec. 22	−2. 35. 41·37

Groombridge 3834.	
Sept. 12	14. 27. 31·83
Oct. 7	31·17
10	32·58
26	32·75
Nov. 6	32·51
7	31·77
8	30·88
Dec. 4	31·69
12	31·66

31 Cephei.	
Sept. 19	17. 2. 48·82
Nov. 21	48·10

11 Lacertæ.	
Sept. 19	46. 25. 2·80
23	2·84
27	3·16
Nov. 6	2·75

ζ Pegasi.	
Oct. 3	79. 51. 43·05

19 Piscis Australis.	
Aug. 6	120. 3. 19·73
Sept. 16	19·02

19 Piscis Australis *cont.*	
	Direct.
Oct. 7	120° 3′ 18″·96
10	17·53
26	16·02
28	17·88

μ Pegasi.	
Sept. 5	66. 5. 58·73
Nov. 5	59·89
8	61·94
13	59·48
	Reflexion.
Sept. 5	66. 6. 0·52
Nov. 5	0·68
8	0·96

ι Cephei.	
Sept. 12	24. 29. 54·93
18	54·91
23	55·45
Oct. 1	55·06
26	54·24

λ Aquarii.	
Oct. 10	98. 17. 10·36
Dec. 4	11·30

Fomalhaut.	
Sept. 23	120. 19. 32·51
Oct. 26	34·04
Nov. 6	34·48
7	32·80
8	33·34
21	35·46
23	36·65

81½ Aquarii.	
Dec. 4	97. 46. 27·91

Bradley 3058.	
	Direct.
Aug. 6	6° 21′ 57″·03
13	58·02
Sept. 12	58·25
Nov. 5	58·14
	Reflexion.
Aug. 6	6. 21. 54·79
13	55·75
Sept. 12	57·20
Nov. 5	56·52

Piazzi XXII. 282.	
Oct. 26	125. 28. 4·32

α Pegasi.	
Feb. 7	75. 30. 34·99
April 23	34·97

Bradley 3067.	
Aug. 27	9. 56. 4·78
Sept. 16	5·46

Var. (R) Pegasi.	
Oct. 3	80. 10. 27·39
Nov. 6	27·29
23	24·43

56 Pegasi.	
Aug. 20	65. 14. 56·53
Sept. 3	56·51
6	56·40
18	56·27
	Reflexion.
Aug. 20	65. 14. 57·83

5 Andromedæ.	
Aug. 27	41. 25. 41·87

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π Cephei.	
	Direct.
Nov. 21	15° 19′ 51″·51

φ Aquarii.	
Sept. 12	96. 45. 55·51
13	56·01
Nov. 6	54·98

γ Piscium.	
Nov. 21	87. 26. 37·67

ψ^2 Aquarii.	
Sept. 13	99. 54. 29·41
Nov. 6	29·33
7	28·56

ο Cephei.	
Oct. 17	22. 36. 57·09
19	57·79
26	57·71
Nov. 6	56·99
8	56·83
21	57·42
	Reflexion.
Oct. 19	22. 36. 57·46
Nov. 8	57·62

Bradley 3094.	
Sept. 20	42. 20. 50·42
23	50·78
28	50·81

12 Andromedæ.	
Aug. 27	52. 32. 36·43
Sept. 18	36·15

b Aquarii.	
	Direct.
Sept. 28	110° 49′ 34″·62
Oct. 3	35·08
17	34·07
25	33·79
26	34·14

Bradley 3107.	
Aug. 27	70. 10. 10·99

κ Piscium.	
July 21	89. 28. 20·00
Oct. 25	19·99
Nov. 21	19·89
Dec. 4	20·19

Bradley 3125.	
Oct. 17	20. 22. 17·55

71 Pegasi.	
Aug. 27	68. 14. 5·68
Oct. 17	5·44
19	6·37
25	6·06
26	6·01
	Reflexion.
Oct. 19	68. 14. 6·40
26	7·10

Bradley 3147.	
Sept. 18	3. 25. 35·14

Bradley 3147 S.P.	
Mar. 16	−3. 25. 33·87
25	34·77
April 3	34·39

16 Piscium.	
	Direct.
Dec. 4	88° 38′ 8″·01

Piazzi XXIII. 133.	
Aug. 27	103. 47. 49·70
Sept. 18	49·90
28	50·35
Oct. 3	48·65
17	48·60

ι Andromedæ.	
Nov. 6	47. 28. 5·11
Dec. 4	5·24

γ Cephei.	
Oct. 25	13. 6. 35·64
26	34·75
Nov. 8	34·70
11	35·08
21	35·54
	Reflexion.
Nov. 21	13. 6. 36·09

γ Cephei S.P.	
Mar. 30	−13. 6. 35·50

λ Piscium.	
Oct. 10	88. 57. 4·25

Bradley 3166.	
Sept. 5	22. 55. 55·47
Oct. 19	54·44
26	55·34
	Reflexion.
Sept. 5	22. 55. 55·80
Oct. 26	54·58

δ Sculptoris.	
	Direct.
Dec. 4	118° 51′ 55″·06

21 Piscium.	
Nov. 7	89. 39. 43·32
8	43·92

Piazzi XXIII. 200.	
Sept. 18	100. 42. 58·09
28	58·79
Oct. 3	57·89

83 Pegasi.	
Sept. 18	68. 59. 46·40
20	46·78

Groombridge 4163.	
Oct. 17	16. 19. 45·88
19	45·44
Nov. 8	47·76
11	45·93
	Reflexion.
Oct. 17	16. 19. 47·21

Bradley 3187.	
Sept. 28	7. 33. 0·26

ψ Pegasi.	
Oct. 3	65. 35. 52·89
19	51·71
Nov. 13	51·57

ψ Pegasi *continued.*	
	Reflexion.
Nov. 13	65° 35′ 53″·29

27 Piscium.	
	Direct.
Sept. 13	94. 17. 37·21
14	37·54

Bradley 3193.	
Sept. 20	28. 33. 47·09
Oct. 1	47·77

29 Piscium.	
Nov. 7	93. 46. 3·43
8	3·88

33 Piscium.	
Sept. 13	96. 27. 4·83
14	5·77

Bradley 3212.	
Jan. 11	61. 42. 45·58
Sept. 27	46·99
Oct. 1	45·90
19	44·70
Nov. 23	45·27
Dec. 4	44·86
	Reflexion.
Nov. 23	61. 42. 45·93
Dec. 4	46·08

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ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF AZIMUTH,

WITH THE

ALTAZIMUTH.

1867.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
												(Hardy.)						
Jan. 18	JC	1	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·093	2·657	3·157	2·971
	JC	2	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·464	4·154	4·887	4·621
Jan. 19	E	3	☽ 1 L.....	Left	42·9	47·0	51·8	56·3	0·8	5·2	+ 0·16	3. 33. 54·16	22·35	3. 34. 16·51	5·067	4·583	5·257	5·317
	E	4	☽ 1 L.....	Right	32·4	36·7	41·1	45·8	50·2	54·8	+ 0·16	3. 44. 43·66	22·33	3. 45. 5·99	1·472	1·408	1·927	1·524
	E	5	α Ceti.....	Left	16·6	20·0	23·4	26·7	30·1	33·2	+ 0·16	3. 50. 25·16	22·32	3. 50. 47·48	0·587	0·422	1·315	0·975
	E	6	α Ceti.....	Right	0·6	3·4	7·0	10·4	13·7	17·0	+ 0·16	3. 55. 8·84	22·32	3. 55. 31·16	3·130	2·632	3·135	3·165
	E	7	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·047	2·680	3·136	3·015
	E	8	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·282	3·920	4·975	4·832
Jan. 20	C	9	☽ 2 L.....	Left	46·4	50·6	55·1	59·8	4·0	8·1	− 0·12	4. 40. 57·21	20·10	4. 41. 17·31	1·463	1·064	1·571	1·530
	C	10	☽ 2 L.....	Right	35·3	39·5	44·0	48·3	52·6	56·9	− 0·12	4. 51. 45·98	20·08	4. 52. 6·06	8·266	8·070	8·675	8·424
Jan. 23	E	11	☽ 2 L.....	Left	42·1	46·0	49·8	54·0	57·6	1·4	+ 0·16	8. 22. 51·98	14·12	8. 23. 6·10	0·605	0·178	0·710	0·474
	E	12	☽ 2 L.....	Right	4·0	7·9	11·6	15·6	19·5	23·2	+ 0·16	8. 34. 13·79	14·11	8. 34. 27·90	4·222	4·070	4·782	4·447
	E	13	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·064	2·618	3·100	2·925
	E	14	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·143	3·956	4·975	4·735
	E	15	β Leonis....	Right	19·4	23·3	27·2	31·4	35·0	39·2	+ 0·16	9. 17. 29·41	14·08	9. 17. 43·49	6·864	6·535	7·130	6·815
	E	16	β Leonis....	Left	2·6	6·4	10·2	14·1	18·0	21·8	+ 0·16	9. 25. 12·34	14·08	9. 25. 26·42	6·428	5·834	6·668	6·774
												(Graham 1.)						
Jan. 28	C	17	☽ 2 L..(E&E)	Left	50·5	9·5	28·3	47·2	6·4	25·2	..	12. 47. 37·85	−34·64	12. 47. 3·21	0·474	0·062	0·785	0·607
	C	18	☽ 2 L..(E&E)	Right	38·3	57·5	16·4	35·0	53·8	12·5	..	13. 0. 25·58	−34·64	12. 59. 50·94	5·534	5·302	5·757	5·490
	C	19	β Leo. .(E&E)	Right	16·3	34·5	52·2	10·2	28·1	46·5	..	13. 17. 1·30	−34·64	13. 16. 26·66	2·173	1·810	2·030	1·948
	C	20	β Leo. .(E&E)	Left	30·5	48·8	7·0	25·5	43·2	1·5	..	13. 24. 16·08	−34·64	13. 23. 41·44	4·608	4·284	4·974	4·652
	C	21	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·270	3·900	4·935	4·696
	C	22	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·073	2·566	3·054	2·842
												(Hardy.)						
Jan. 30	JC	23	☽ 2 L.....	Right	54·4	57·9	1·5	5·5	9·0	12·8	− 0·08	15. 24. 3·44	4·89	15. 24. 8·33	1·964	1·743	2·171	1·792
	JC	24	☽ 2 L.....	Left	56·3	0·1	3·7	7·4	11·2	14·6	− 0·08	15. 33. 5·47	4·90	15. 33. 10·37	6·924	6·526	7·419	7·334
	JC	25	α Serpentis..	Left	45·4	48·5	51·9	55·4	58·3	1·5	− 0·08	15. 43. 53·42	4·90	15. 43. 58·32	7·723	7·476	8·320	8·065
	JC	26	α Serpentis..	Right	35·3	38·4	41·9	45·0	48·4	51·6	− 0·08	15. 48. 43·35	4·91	15. 48. 48·26	3·836	3·493	3·882	3·739
	JC	27	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·928	2·543	2·981	2·778
	JC	28	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·317	4·038	4·734	4·467
Feb. 1	C	29	☽ 2 L.....	Left	32·6	36·8	40·4	44·8	48·5	52·7	− 0·12	15. 46. 42·51	6·72	15. 46. 49·23	2·165	1·700	2·510	2·486
	C	30	☽ 2 L.....	Right	58·0	2·0	5·9	10·0	13·8	17·8	− 0·12	16. 0. 7·80	6·73	16. 0. 14·53	3·322	3·191	3·684	3·301
	C	31	α Serpentis..	Right	15·8	18·9	22·1	25·4	28·8	32·0	− 0·12	16. 5. 23·71	6·73	16. 5. 30·44	6·670	6·501	6·550	6·390
	C	32	α Serpentis..	Left	33·6	37·0	40·2	43·6	46·9	50·0	− 0·12	16. 10. 41·76	6·74	16. 10. 48·50	7·579	7·290	8·080	7·850
	C	33	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·321	4·000	4·934	4·672
	C	34	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·040	2·610	3·121	2·913
Feb. 6	E	35	☽ 1 L.....	Left	17·3	21·7	25·5	..	33·6	37·5	+ 0·16	3. 9. 27·28	20·45	3. 9. 47·73	5·232	5·318	5·773	5·563
	E	36	☽ 1 L..	Right	22·0	26·0	30·0	34·1	38·3	42·4	+ 0·16	3. 18. 32·29	20·47	3. 18. 52·76	3·718	3·270	3·647	3·783
	E	37	α Ceti.....	Right	3·0	6·1	9·0	12·6	15·7	19·2	+ 0·16	3. 25. 11·09	20·48	3. 25. 31·57	6·337	5·920	6·275	6·183
	E	38	α Ceti.....	Left	36·8	40·0	43·2	46·6	49·8	53·0	+ 0·16	3. 29. 45·06	20·49	3. 30. 5·55	7·110	6·797	7·685	7·560
	E	39	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·318	4·025	4·780	4·543
	E	40	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·840	2·426	2·905	2·780
Feb. 8	JC	41	☽ 1 L.....	Right	55·1	58·7	2·4	6·1	9·9	13·7	− 0·08	3. 6. 4·24	25·42	3. 6. 29·66	5·142	4·694	5·033	5·180
	JC	42	☽ 1 L.....	Left	32·8	36·6	40·2	44·3	47·8	51·3	− 0·08	3. 16. 42·09	25·43	3. 17. 7·52	0·494	0·527	1·048	0·659

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, + 0″·12; from February 6, − 0″·12.

35. Cloudy at the 4th wire.

41. Cloudy.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
10. 34. 48·92	102. 18	+ 3·69	38·0	227·6	41·2	241·3	5·4	284·0	4·3	270·3	14·01	+ 0·06	10. 34. 52·67	179. 37. 33·85	1
190. 34. 57·96	102. 18	− 3·69	42·3	231·8	46·0	246·2	9·3	287·8	9·7	275·6	18·59	− 1·06	190. 34. 53·21	179. 37. 34·39	2
114. 18. 13·35	58. 54	+ 4·22	41·0	230·3	44·2	244·0	9·5	287·5	8·5	274·7	17·46	− 2·26	114. 18. 15·31	283. 20. 58·79	3
296. 36. 0·53	57. 21	− 4·29	39·0	227·7	42·0	241·7	7·0	285·0	4·5	271·2	14·76	+ 0·67	296. 35. 56·91	285. 38. 40·39	4
209. 20. 31·42	49. 17	+ 4·76	41·5	230·3	44·5	244·5	10·5	287·8	8·7	275·0	17·85	− 3·56	209. 20. 32·62	18. 23. 16·10	5
30. 51. 55·33	49. 31	− 4·75	36·0	225·5	38·5	238·5	3·5	282·0	−0·5	266·6	11·26	− 2·10	30. 51. 48·48	19. 54. 31·96	6
10. 34. 48·92	102. 18	+ 3·69	36·5	225·7	39·0	238·5	4·5	281·6	1·0	267·5	11·79	− 0·42	10. 34. 52·19	179. 37. 35·67	7
190. 34. 56·75	102. 18	− 3·69	40·0	229·3	43·0	243·5	7·5	286·5	6·5	272·7	16·13	− 0·53	190. 34. 52·53	179. 37. 36·01	8
116. 15. 53·75	60. 13	+ 4·16	41·5	231·6	44·5	244·8	9·7	287·5	10·0	275·9	18·19	− 2·56	116. 15. 55·35	285. 18. 38·81	9
298. 35. 19·80	58. 41	− 4·23	38·3	227·6	41·0	240·7	6·4	283·8	4·5	270·5	14·10	+ 0·23	298. 35. 15·80	287. 37. 59·28	10
135. 25. 18·76	62. 53	+ 4·05	65·0	229·0	68·7	240·0	47·0	274·4	43·5	263·5	28·89	− 7·77	135. 25. 15·04	304. 27. 51·88	11
318. 7. 47·53	61. 32	− 4·11	48·5	211·8	50·0	221·5	26·5	251·5	24·5	242·5	9·60	− 2·23	318. 7. 41·19	307. 10. 18·03	12
10. 34. 47·29	102. 18	+ 3·69	52·5	216·3	54·5	225·5	30·5	256·8	29·5	246·3	13·99	+ 0·06	10. 34. 51·04	179. 37. 27·88	13
190. 34. 54·85	102. 18	− 3·69	57·7	218·8	57·0	229·0	34·0	260·2	33·0	249·5	17·40	− 0·80	190. 34. 50·36	179. 37. 27·20	14
318. 59. 21·54	46. 13	− 4·99	51·0	214·5	52·8	224·0	29·5	254·0	27·0	243·0	11·98	− 1·67	318. 59. 14·88	308. 1. 51·72	15
141. 14. 5·73	45. 17	+ 5·08	63·0	225·0	64·8	236·0	42·0	266·8	39·7	256·2	24·19	−10·37	141. 14. 0·44	310. 16. 37·28	16
148. 0. 18·33	76. 54	+ 3·21	54·8	221·4	57·5	232·0	28·4	269·0	27·1	258·1	18·54	− 1·12	148. 0. 20·42	317. 2. 59·20	17
330. 48. 31·22	75. 39	− 3·23	51·1	218·0	54·4	228·6	23·9	263·6	23·3	253·0	14·49	+ 0·20	330. 48. 28·19	319. 51. 6·97	18
47. 6. 16·15	40. 45	− 4·80	50·5	217·0	54·2	227·9	22·8	261·5	21·9	251·5	13·41	− 0·36	47. 6. 10·99	36. 8. 49·77	19
229. 32. 57·08	41. 26	+ 4·73	60·0	226·7	65·4	238·8	34·4	274·0	33·4	263·0	24·46	−12·17	229. 32. 49·64	38. 35. 28·42	20
190. 34. 53·68	102. 18	− 3·20	58·6	226·0	63·0	238·0	32·0	272·6	31·3	260·9	22·80	− 1·98	190. 34. 48·50	179. 37. 27·28	21
10. 34. 46·95	102. 18	+ 3·20	45·5	212·0	49·2	223·9	17·5	256·6	17·6	245·9	8·53	− 1·13	10. 34. 49·02	179. 37. 27·80	22
341. 41. 13·38	74. 54	− 3·74	49·8	217·0	54·3	229·6	22·4	265·3	21·7	254·2	14·36	+ 0·17	341. 41. 9·81	330. 43. 49·21	23
163. 44. 29·65	74. 16	+ 3·75	54·0	221·3	59·2	234·0	27·8	270·2	26·9	259·2	19·08	− 1·51	163. 44. 31·89	332. 47. 11·29	24
193. 10. 2·04	44. 38	+ 5·14	58·2	225·8	63·7	239·0	33·1	275·2	32·0	264·2	23·90	−10·31	193. 9. 56·87	2. 12. 36·27	25
14. 52. 22·98	44. 40	− 5·14	47·1	214·4	52·0	227·2	19·1	261·3	19·0	250·7	11·35	− 2·40	14. 52. 15·44	3. 54. 54·84	26
10. 34. 42·73	102. 18	+ 3·69	49·2	216·0	53·7	228·8	21·2	262·5	21·2	252·0	13·08	− 0·14	10. 34. 46·28	179. 37. 25·68	27
190. 34. 52·52	102. 18	− 3·69	58·6	225·2	63·6	238·8	32·2	273·3	31·2	262·4	23·16	− 2·06	190. 34. 46·77	179. 37. 26·17	28
144. 6. 24·61	82. 12	+ 3·64	60·3	219·5	66·4	232·8	38·6	264·4	37·4	254·6	21·75	− 1·10	144. 6. 27·15	313. 9. 1·21	29
326. 52. 9·10	80. 46	− 3·66	53·6	213·7	59·4	226·6	30·4	256·2	29·9	246·1	14·49	+ 0·13	326. 52. 5·57	315. 54. 39·63	30
20. 44. 9·84	44. 59	− 5·11	58·2	218·6	65·0	232·0	35·6	261·8	34·9	252·0	19·76	+ 6·05	20. 44. 10·78	9. 46. 44·84	31
202. 34. 54·52	45. 8	+ 5·09	58·0	219·0	64·0	231·8	35·6	261·9	34·5	251·8	19·58	− 5·83	202. 34. 53·78	11. 37. 27·84	32
190. 34. 56·02	102. 18	− 3·69	59·8	219·7	65·4	233·0	36·8	262·4	35·8	252·8	20·71	− 1·52	190. 34. 50·81	179. 37. 24·87	33
10. 34. 47·06	102. 18	+ 3·69	52·0	212·6	58·5	225·8	29·0	254·9	28·2	245·2	13·28	− 0·10	10. 34. 50·65	179. 37. 24·71	34
257. 43. 23·13	81. 0	+ 4·08	55·0	221·5	64·0	238·5	27·5	273·7	27·7	262·0	21·24	− 1·18	257. 43. 26·03	66. 46. 7·64	35
79. 32. 17·55	82. 15	− 4·07	50·0	217·0	57·5	232·5	21·0	267·5	20·5	256·2	15·28	+ 0·21	79. 32. 13·69	68. 34. 55·30	36
21. 3. 55·86	48. 19	− 5·40	50·0	217·0	58·0	232·2	21·3	266·7	20·5	255·8	15·19	+ 1·28	21. 3. 51·74	10. 6. 33·35	37
202. 34. 38·07	48. 27	+ 5·38	56·8	223·8	65·5	240·5	30·0	275·5	28·5	263·8	23·05	− 8·24	202. 34. 35·21	11. 37. 16·82	38
190. 34. 53·17	102. 18	− 4·12	60·0	227·2	69·5	244·8	35·0	276·7	33·8	265·4	26·55	− 2·79	190. 34. 46·26	179. 37. 27·87	39
10. 34. 39·79	102. 18	+ 4·12	45·8	212·2	53·0	228·0	18·5	259·4	17·3	248·5	10·34	− 0·74	10. 34. 43·17	179. 37. 24·78	40
53. 38. 11·27	60. 29	− 4·63	58·0	215·7	66·2	229·3	38·2	258·8	36·5	249·0	18·96	+ 2·95	58. 38. 9·59	47. 40. 47·33	41
241. 15. 25·98	61. 40	+ 4·58	56·2	213·3	64·0	227·3	36·0	256·7	35·2	246·8	16·94	− 1·72	241. 15. 28·84	50. 18. 6·58	42

Co-efficient of Correction for Collimation, Face Right, − 3″·61; January 28, − 3″·13; from January 30, − 3″·61; from February 6, − 4″·03.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 13″·72; from February 6, 13″·75.
Zero of Azimuth, 10°. 57′. 18″·82; January 19 and 20, 10°. 57′. 16″·52; January 23, 10°. 57′. 23″·16; January 28, 10°. 57′. 21″·22; January 30, 10°. 57′. 20″·60; February 1, 10°. 57′. 25″·94; February 6, 10°. 57′. 18″·39; February 8, 10°. 57′. 22″·26.
The Collimator is generally bisected by wire *x*: the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

35. The correction applied in forming Circle Reading for mean of wires observed is − 5″·15.

36. The reading for *g* was set down 47ᵈ·5.

39. The readings for *e* and *i* were set down 50ᵈ·0 and 25ᵈ·0 respectively.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
Feb. 22	E	1	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·388	4·072	4·816	4·625
	E	2	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·995	2·628	3·115	2·842
Feb. 23	C	3	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·932	2·610	3·027	2·816
	C	4	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·241	3·954	4·820	4·600
	C	5	β Leonis	Left	25·8	29·6	33·0	37·0	40·4	44·1	— 0·12	9. 59. 34·86	14·75	9. 59. 49·61	0·490	9·998	0·997	0·926
	C	6	β Leonis	Right	31·4	34·7	38·5	42·2	45·8	49·6	— 0·12	10. 3. 40·25	14·76	10. 3. 55·01	4·060	3·790	4·251	3·920
	C	7	☽ 2 L.	Left	52·1	56·3	0·3	4·4	8·3	12·3	— 0·12	10. 21. 2·16	14·80	10. 21. 16·96	1·724	1·360	1·804	1·710
	C	8	☽ 2 L.	Right	45·8	49·4	53·3	57·7	1·7	5·4	— 0·12	10. 35. 55·43	14·84	10. 36. 10·27	4·320	4·148	4·750	4·574
Feb. 24	D	9	☽ 2 L.....	Left	30·9	34·6	38·2	42·0	45·7	49·2	..	13. 4. 40·10	19·03	13. 4. 59·15	1·812	1·428	2·401	2·258
	D	10	☽ 2 L.....	Right	35·0	38·2	41·8	45·6	49·3	52·9	..	13. 13. 43·80	19·07	13. 14. 2·87	4·367	4·120	4·592	4·317
	D	11	β Leonis....	Right	7·0	10·4	14·0	17·9	21·5	25·1	..	13. 25. 15·98	19·10	13. 25. 35·08	0·862	0·470	0·729	0·625
	D	12	β Leonis....	Left	37·2	40·6	44·5	48·0	51·9	55·3	..	13. 30. 46·25	19·12	13. 31. 5·37	5·868	5·824	6·453	6·091
	D	13	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·185	3·879	4·968	4·736
	D	14	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·984	2·546	3·112	2·942
Feb. 28	JC	15	☽ 2 L.....	Right	42·1	45·7	49·6	53·4	57·4	1·2	— 0·08	16. 8. 51·49	34·95	16. 9. 26·44	3·973	3·816	4·245	3·926
	JC	16	☽ 2 L.....	Left	30·8	34·3	37·9	42·0	45·9	49·3	— 0·08	16. 19. 39·95	34·98	16. 20. 14·93	5·157	4·706	5·474	5·409
	JC	17	α Serpentis .	Left	31·5	35·3	38·3	41·8	44·9	48·2	— 0·08	16. 27. 39·92	35·01	16. 28. 14·93	6·399	6·184	6·990	6·718
	JC	18	α Serpentis .	Right	50·5	53·9	57·2	0·5	4·0	7·3	— 0·08	16. 41. 58·82	35·04	16. 42. 33·86	4·408	4·033	4·419	4·317
	JC	19	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·918	2·532	3·014	2·803
	JC	20	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·312	4·001	4·743	4·481
Mar. 2	E	21	☽ 2 L.....	Left	35·1	39·1	43·2	47·6	51·6	55·4	+ 0·16	16. 35. 45·49	43·38	16. 36. 28·87	3·537	3·045	3·575	3·362
	E	22	☽ 2 L.....	Right	43·2	47·4	51·3	55·4	59·5	3·7	+ 0·16	16. 46. 53·58	43·41	16. 47. 36·99	1·245	1·110	1·637	1·436
	E	23	α Serpentis .	Right	57·7	1·0	4·2	7·9	11·1	14·6	+ 0·16	16. 54. 6·24	43·43	16. 54. 49·67	6·405	5·898	6·257	6·234
	E	24	α Serpentis .	Left	18·7	22·0	25·4	29·0	32·4	36·0	+ 0·16	17. 1. 27·41	43·44	17. 2. 10·85	1·055	0·900	1·435	1·186
	E	25	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·296	3·888	4·925	4·736
	E	26	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·864	2·596	2·966	2·812
Mar. 7	D	27	☽ 1 L.....	Left	5·4	9·8	14·0	18·2	22·7	26·4	..	5. 38. 16·08	56·03	5. 39. 12·11	2·257	2·342	2·779	2·599
	D	28	α Orionis ...	Right	48·9	52·3	55·3	58·5	1·8	5·1	..	5. 49. 56·98	56·04	5. 50. 53·02	6·982	6·497	7·057	7·041
	D	29	α Orionis ...	Left	0·2	3·4	6·7	10·0	13·2	16·3	..	5. 55. 8·30	56·05	5. 56. 4·35	0·330	0·080	0·682	0·342
	D	30	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·298	4·012	4·931	4·692
	D	31	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·012	2·592	3·102	2·965
Mar. 8	JC	32	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·369	4·098	4·934	4·694
	JC	33	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·037	2·616	3·124	2·946
	JC	34	☽ 1 L.....	Right	33·0	36·9	41·2	45·3	49·7	54·0	— 0·08	6. 16. 43·27	57·84	6. 17. 41·11	5·433	4·890	5·497	5·672
	JC	35	α Orionis ...	Left	49·8	53·2	56·5	59·6	3·0	6·2	— 0·08	6. 32. 57·97	57·86	6. 33. 55·83	5·457	5·266	6·043	5·741
	JC	36	α Orionis ...	Right	49·0	52·3	55·4	58·9	2·4	5·6	— 0·08	6. 36. 57·19	57·86	6. 37. 55·05	1·369	0·946	1·417	1·255
Mar. 14	E	37	☽ 1 L.....	Left	31·8	35·4	39·2	43·2	47·1	50·6	+ 0·16	8. 26. 41·38	8·87	8. 26. 50·25	2·444	2·382	3·094	2·816
	E	38	☽ 1 L.....	Right	35·9	39·6	43·0	47·0	51·1	55·1	+ 0·16	8. 36. 45·44	8·88	8. 36. 54·32	6·675	6·130	6·635	6·825
	E	39	Regulus	Right	54·2	57·5	1·2	4·7	8·1	11·8	+ 0·16	8. 44. 3·08	8·89	8. 44. 11·97	1·536	1·285	1·680	1·310
	E	40	Regulus	Left	12·8	16·4	19·7	23·4	26·9	30·3	+ 0·16	8. 50. 21·74	8·90	8. 50. 30·64	5·560	5·120	6·030	5·965
	E	41	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·435	4·080	4·885	4·570
	E	42	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·037	2·565	3·050	2·847

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, −0″·12; from March 7, +0″·04.

5. The cross-wires of microscope *b* fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head, 9 in the integers representing −1.

7, 8. Cloudy; very faint.

18. Cloudy.

27. Faint.

35. The reading for *a* was set down 5ʳ·157.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
190. 34. 55·38	102. 18	− 4·12	62·5	223·5	72·8	240·5	40·0	269·0	28·0	248·2	23·06	− 2·47	190. 34. 48·79	179. 37. 20·97	1
10. 34. 45·84	102. 18	+ 4·12	50·0	212·0	60·5	228·5	26·4	254·8	13·5	233·5	9·90	− 0·40	10. 34. 49·56	179. 37. 21·74	2
10. 34. 44·05	102. 18	+ 4·12	48·8	213·6	59·0	230·7	23·5	261·6	12·8	241·0	11·38	− 0·08	10. 34. 48·09	179. 37. 27·01	3
190. 34. 52·64	102. 18	− 4·12	55·5	220·0	66·2	238·0	31·8	268·6	21·0	248·0	18·64	− 1·50	190. 34. 47·02	179. 37. 25·94	4
152. 0. 22·80	41. 33	+ 6·08	47·8	212·5	58·1	229·7	22·5	257·4	11·2	237·1	9·54	+ 2·48	152. 0. 31·36	321. 3. 10·28	5
333. 22. 32·87	41. 9	− 6·13	54·1	218·8	64·0	236·0	29·6	264·7	18·5	244·0	16·21	+ 5·11	333. 22. 31·85	322. 25. 10·77	6
130. 6. 2·91	82. 6	+ 4·07	54·8	219·5	65·0	237·2	30·5	264·9	19·4	244·6	16·99	− 0·73	130. 6. 6·25	299. 8. 45·17	7
313. 7. 47·84	80. 13	− 4·09	56·5	221·0	66·9	238·6	31·9	266·4	21·2	246·1	18·58	+ 1·18	313. 7. 44·93	302. 10. 23·85	8
156. 6. 15·20	72. 18	+ 4·23	50·1	212·2	59·2	228·3	26·3	256·8	14·2	235·5	10·33	+ 0·45	156. 6. 19·88	325. 9. 1·85	9
338. 12. 45·98	71. 34	− 4·25	55·4	217·3	64·8	234·0	32·1	262·7	20·0	241·4	15·96	+ 1·41	338. 12. 43·14	327. 15. 25·11	10
50. 10. 25·62	41. 37	− 6·07	53·9	216·2	63·3	233·0	30·0	260·8	18·0	239·5	14·34	+ 2·93	50. 10. 22·48	39. 13. 4·45	11
231. 58. 51·23	42. 11	+ 6·00	59·5	221·8	69·8	239·2	36·5	267·8	24·7	247·0	20·79	− 9·98	231. 58. 47·25	41. 1. 29·22	12
190. 34. 53·98	102. 18	− 4·12	56·3	218·8	66·0	235·6	32·3	263·5	20·6	242·1	16·90	− 1·12	190. 34. 48·74	179. 37. 30·71	13
10. 34. 45·83	102. 18	+ 4·12	50·0	212·5	59·8	229·1	24·8	255·3	13·3	235·1	9·99	− 0·38	10. 34. 49·57	179. 37. 31·54	14
333. 27. 32·29	77. 59	− 4·12	48·0	224·3	59·7	245·2	20·3	278·6	8·7	255·7	17·56	+ 1·24	333. 27. 29·41	322. 30. 14·23	15
155. 48. 17·87	77. 1	+ 4·13	43·6	220·0	54·8	240·2	14·9	272·2	2·0	249·3	12·13	− 0·09	155. 48. 21·91	324. 51. 6·73	16
208. 34. 10·80	45. 49	+ 5·62	52·3	229·2	65·0	251·2	25·7	283·2	14·7	260·8	22·76	−10·70	208. 34. 5·72	17. 36. 50·54	17
33. 22. 44·55	46. 35	− 5·55	41·0	217·2	51·8	236·4	11·7	268·2	−2·0	244·2	8·56	− 3·01	33. 22. 35·99	22. 25. 20·81	18
10. 34. 42·85	102. 18	+ 4·12	43·0	219·2	54·0	238·9	14·6	270·7	2·3	247·5	11·28	− 0·10	10. 34. 46·87	179. 37. 31·69	19
190. 34. 51·93	102. 18	− 4·12	50·2	226·4	62·2	247·3	23·0	278·7	11·8	256·6	19·53	− 1·70	190. 34. 46·11	179. 37. 30·93	20
136. 2. 11·23	83. 48	+ 4·05	41·0	224·0	53·0	246·0	11·5	281·7	0·0	257·3	14·31	− 0·28	136. 2. 15·00	305. 4. 55·97	21
318. 15. 49·85	82. 27	− 4·07	44·5	227·2	56·5	249·0	13·5	283·8	2·5	260·5	17·19	+ 0·72	318. 15. 46·50	307. 18. 27·47	22
37. 23. 57·08	47. 23	− 5·48	37·0	220·5	48·0	241·0	3·5	272·0	−6·0	250·5	8·31	− 3·16	37. 23. 48·44	26. 26. 29·41	23
219. 45. 43·56	47. 54	+ 5·43	51·5	233·5	64·8	257·3	23·5	292·0	13·0	270·8	25·80	−12·71	219. 45. 36·28	28. 48. 17·25	24
190. 34. 54·79	102. 18	− 4·12	47·0	228·5	59·2	252·7	17·0	286·5	5·0	263·2	19·89	− 1·78	190. 34. 48·89	179. 37. 29·86	25
10. 34. 42·55	102. 18	+ 4·12	37·0	218·5	47·5	240·6	5·5	275·3	−7·5	249·8	8·34	− 0·74	10. 34. 45·93	179. 37. 26·90	26
274. 26. 33·42	84. 35	+ 3·69	51·2	232·0	57·0	246·8	20·8	284·2	30·2	281·7	25·49	− 0·87	274. 26. 36·24	83. 29. 16·99	27
11. 59. 23·62	44. 5	− 5·29	42·8	223·2	47·3	237·0	10·8	274·0	19·0	270·8	15·61	− 0·69	11. 59. 17·64	1. 1. 58·39	28
193. 50. 13·65	44. 7	+ 5·29	52·5	232·4	58·8	248·2	21·8	285·1	31·1	282·9	26·60	−10·64	193. 50. 8·30	2. 52. 49·05	29
190. 34. 55·93	102. 18	− 3·76	51·8	231·9	57·6	247·0	20·2	283·3	29·4	280·9	25·26	− 1·96	190. 34. 50·21	179. 37. 30·96	30
10. 34. 46·84	102. 18	+ 3·76	43·1	223·2	47·1	236·6	10·2	272·6	18·3	269·2	15·04	− 0·27	10. 34. 50·33	179. 37. 31·08	31
190. 34. 57·50	102. 18	− 3·76	50·6	229·6	56·2	244·3	20·2	279·6	30·0	277·7	23·53	− 1·58	190. 34. 52·16	179. 37. 30·40	32
10. 34. 47·34	102. 18	+ 3·76	44·2	223·7	49·3	237·2	13·3	272·4	22·2	269·8	16·51	+ 0·05	10. 34. 51·15	179. 37. 29·39	33
94. 8. 25·32	78. 52	− 3·75	40·3	219·4	45·8	233·7	10·2	268·7	18·0	265·7	12·73	− 0·70	94. 8. 20·87	83. 10. 59·11	34
207. 8. 35·04	45. 6	+ 5·20	52·2	230·7	58·3	246·2	23·0	281·2	32·6	278·8	25·38	− 9·07	207. 8. 31·17	16. 11. 9·41	35
28. 30. 47·61	45. 16	− 5·18	43·6	222·2	48·5	236·3	12·8	270·3	21·7	268·2	15·45	− 0·82	28. 30. 41·61	17. 33. 19·85	36
227. 21. 42·52	38. 37	+ 5·90	50·0	232·5	58·0	251·8	18·8	289·0	28·0	286·0	26·76	−13·12	227. 21. 35·30	36. 24. 11·90	37
50. 44. 10·97	39. 33	− 5·78	38·5	221·3	43·0	236·5	5·0	274·6	11·5	269·2	12·45	− 4·64	50. 44. 0·53	39. 46. 37·15	38
342. 5. 55·54	41. 52	− 5·51	46·5	229·8	53·0	247·0	13·5	283·5	22·5	280·6	22·05	+ 6·44	342. 5. 56·47	331. 8. 33·07	39
164. 18. 36·60	41. 24	+ 5·56	42·0	225·7	48·8	243·0	9·5	279·0	16·8	275·5	17·54	− 1·43	164. 18. 40·73	333. 21. 17·33	40
190. 34. 56·34	102. 18	− 3·76	48·5	231·5	56·0	249·0	15·3	284·0	24·2	281·8	23·79	− 1·64	190. 34. 50·94	179. 37. 27·54	41
10. 34. 45·30	102. 18	+ 3·76	43·0	227·2	50·2	243·8	11·2	280·0	19·8	276·6	18·98	+ 0·59	10. 34. 49·65	179. 37. 26·25	42

Co-efficient of Correction for Collimation, Face Right, −4″·03 ; from March 7, −3″·68.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle 11″·74 ; from March 7, 16″·28.
Zero of Azimuth, 10°. 57′. 27″·82; February 23, 10°. 57′. 21″·08; February 24, 10°. 57′. 18″·03; February 28, 10°. 57′. 15″·18 ; March 2, 10°. 57′. 19″·03; March 7, 10°. 57′. 19″·25 ; March 8, 10°. 57′. 21″·76 ; March 14, 10°. 57′. 23″·40.
The Collimator is generally bisected by wire *x* ; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

21. The reading for *l* was set down 7^{d}·5.
23. The reading for *k* was set down 277^{d}·0
24. The reading for *f* was set down 293^{d}·5.
37. The reading for *g* was set down 48^{d}·0.
March 7. The bearings of level *e*–*f* were examined.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
Mar. 27	JC	1	α Serpentis .	Right	28·3	31·4	35·0	38·2	41·9	45·4	— 0·08	16. 40. 36·62	29·48	16. 41. 6·10	5·614	5·202	5·493	5·416
	JC	2	α Serpentis .	Left	58·6	1·7	5·1	8·3	12·0	15·0	— 0·08	16. 45. 6·70	29·49	16. 45. 36·19	4·249	4·116	4·904	4·612
	JC	3	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·158	3·783	4·898	4·697
	JC	4	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·956	2·625	3·041	2·793
Mar. 28	C	5	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·340	4·100	4·900	4·630
	C	6	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·041	2·590	3·152	2·926
Mar. 29	E	7	☽ 2 L.....	Left	21·3	25·4	29·3	33·3	37·2	41·1	+ 0·16	17. 9. 31·43	31·95	17. 10. 3·38	8·020	7·490	8·535	8·625
	E	8	☽ 2 L.....	Right	51·2	54·9	58·5	2·6	6·4	10·2	+ 0·16	17. 29. 0·79	31·97	17. 29. 32·76	4·020	3·757	4·230	3·870
	E	9	α Aquilæ ...	Right	6·8	10·2	13·8	17·3	20·9	24·6	+ 0·16	18. 6. 15·76	32·00	18. 6. 47·76	2·374	2·234	2·646	2·256
	E	10	α Aquilæ ...	Left	19·2	22·7	26·3	29·9	33·2	36·8	+ 0·16	18. 12. 28·18	32·00	18. 13. 0·18	7·303	6·914	7·665	7·495
	E	11	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·186	3·830	4·867	4·690
	E	12	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·967	2·575	3·030	2·785
Mar. 30	D	13	☽ 2 L.....	Left	49·0	52·6	56·5	0·4	4·0	7·8	..	18. 11. 58·38	33·17	18. 12. 31·55	1·986	1·608	2·401	2·216
	D	14	☽ 2 L.....	Right	8·0	11·7	15·4	19·3	23·1	26·9	..	18. 17. 17·40	33·17	18. 17. 50·57	2·764	2·579	2·995	2·668
	D	15	α Aquilæ ...	Right	12·8	16·2	19·4	23·0	26·3	29·9	..	18. 23. 21·27	33·18	18. 23. 54·45	2·541	2·351	2·702	2·356
	D	16	α Aquilæ ...	Left	1·0	4·5	8·0	11·4	15·0	18·1	..	18. 28. 9·67	33·18	18. 28. 42·85	2·752	2·423	3·016	2·837
	D	17	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·400	4·130	4·896	4·640
	D	18	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·038	2·639	3·089	2·978
Mar. 31	JC	19	α Aquilæ ...	Right	8·4	12·2	15·7	19·4	23·0	26·7	— 0·08	17. 32. 17·49	34·64	17. 32. 52·13	5·600	5·405	5·849	5·593
	JC	20	α Aquilæ ..	Left	14·4	18·0	21·6	25·4	29·0	32·6	— 0·08	17. 37. 23·42	34·64	17. 37. 58·06	3·338	2·904	3·691	3·576
	JC	21	☽ 2 L.....	Left	17·0	21·0	25·0	29·3	33·3	37·4	— 0·08	17. 42. 27·09	34·65	17. 43. 1·74	2·898	2·471	3·037	2·933
	JC	22	☽ 2 L.....	Right	55·6	59·9	3·7	8·0	11·9	15·8	— 0·08	17. 55. 5·74	34·66	17. 55. 40·40	6·504	6·356	6·863	6·569
	JC	23	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·034	2·716	3·090	2·856
	JC	24	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·284	3·960	4·893	4·695
April 7	E	25	☽ 1 L.....	Right	58·5	3·0	7·0	11·9	16·4	21·0	+ 0·16	8. 55. 9·79	41·16	8. 55. 50·95	3·327	2·826	3·305	3·466
	E	26	☽ 1 L.....	Left	35·4	40·2	44·9	49·6	53·8	58·2	+ 0·16	9. 5. 47·18	41·17	9. 6. 28·35	1·965	1·990	2·517	2·098
April 8	JC	27	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·238	3·913	4·952	4·807
	JC	28	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·034	2·702	3·091	2·856
	JC	29	☽ 1 L.....	Right	8·4	13·4	17·4	22·1	26·9	31·4	— 0·08	8. 33. 19·85	42·07	8. 34. 1·92	3·057	2·494	3·074	3·256
	JC	30	☽ 1 L.....	Left	49·6	54·1	58·6	3·2	7·7	12·1	— 0·08	8. 44. 0·80	42·08	8. 44. 42·88	1·153	1·271	1·744	1·268
	JC	31	Regulus	Left	47·8	51·1	54·6	58·0	1·4	4·4	— 0·08	8. 53. 56·14	42·09	8. 54. 38·23	2·744	2·361	3·018	2·794
	JC	32	Regulus	Right	21·1	24·4	27·8	31·4	34·7	38·0	— 0·08	8. 57. 29·49	42·09	8. 58. 11·58	4·963	4·640	5·116	4·829
April 9	D	33	☽ 1 L.....	Right	33·9	38·2	42·9	47·2	51·6	58·1	..	8. 52. 45·32	43·44	8. 53. 28·76	1·737	1·438	1·588	1·671
	D	34	☽ 1 L.....	Left	35·1	39·6	44·0	48·7	52·8	57·4	..	9. 4. 46·27	43·45	9. 5. 29·72	4·558	4·628	5·132	4·832
	D	35	β Leonis....	Left	14·2	18·1	22·0	26·0	29·8	33·8	..	9. 14. 23·98	43·46	9. 15. 7·44	6·313	5·751	6·858	6·974
	D	36	β Leonis....	Right	37·6	41·4	45·0	49·1	52·9	56·8	..	9. 20. 47·13	43·46	9. 21. 30·59	7·177	6·949	7·401	7·192
	D	37	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·068	2·782	3·083	2·810
	D	38	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·433	4·192	4·882	4·625
April 10	C	39	☽ 1 L.....	Left	29·8	33·7	37·8	41·7	45·5	49·6	— 0·12	8. 22. 39·56	44·75	8. 23. 24·31	5·525	5·504	6·250	5·898
	C	40	☽ 1 L.....	Right	35·0	39·0	42·6	46·6	50·6	54·7	— 0·12	8. 31. 44·63	44·75	8. 32. 29·38	4·374	3·800	4·316	4·363
	C	41	Regulus	Right	5·7	9·0	12·4	16·1	19·5	23·0	— 0·12	8. 39. 14·16	44·76	8. 39. 58·92	5·560	5·218	5·710	5·439
	C	42	Regulus	Left	39·7	43·2	46·7	50·3	53·6	57·1	— 0·12	8. 43. 48·31	44·76	8. 44. 33·07	5·171	4·742	5·479	5·345

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^r{\cdot}8$ of *a*, to $7^r{\cdot}7$ of *b*, to $7^r{\cdot}9$ of *c*, and to $8^r{\cdot}0$ of *d*.

Correction for Runs of Microscopes for 100″, + 0″·04; from April 7, — 0″·24.

39. Very cloudy.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
32. 53. 27·65	46. 30	− 5·07	51·3	217·2	57·2	230·6	22·2	260·7	30·7	259·0	16·11	− 0·16	32. 53. 22·42	21. 55. 58·68	1
214. 22. 50·81	46. 46	+ 5·05	61·3	226·8	68·2	241·7	35·0	273·3	43·4	271·6	27·66	−10·70	214. 22. 45·16	23. 25. 21·42	2
190. 34. 52·09	102. 18	− 3·76	54·8	221·2	62·0	235·2	27·2	265·7	35·6	263·6	20·66	− 0·95	190. 34. 47·38	179. 37. 23·64	3
10. 34. 45·44	102. 18	+ 3·76	50·0	215·6	56·2	229·4	20·5	258·8	29·7	257·3	14·69	− 0·35	10. 34. 48·85	179. 37. 25·11	4
190. 34. 56·32	102. 18	− 3·76	56·4	228·0	63·3	243·7	27·9	277·4	36·4	275·7	26·10	− 2·14	190. 34. 50·42	179. 37. 32·78	5
10. 34. 47·21	102. 18	+ 3·76	45·4	216·9	52·0	232·0	14·7	263·2	23·0	261·6	13·60	− 0·58	10. 34. 50·39	179. 37. 32·75	6
148. 5. 12·07	78. 14	+ 3·76	47·0	217·3	53·0	231·5	20·0	266·0	27·5	263·0	15·66	+ 0·13	148. 5. 15·96	317. 7. 58·32	7
332. 17. 31·73	76. 19	− 3·79	53·0	224·0	60·8	238·5	27·0	273·0	34·7	270·6	22·70	+ 1·56	332. 17. 29·50	321. 20. 11·86	8
337. 16. 30·90	47. 23	− 5·00	54·5	225·5	62·5	241·8	26·0	272·5	34·5	269·0	23·29	+ 6·45	337. 16. 32·35	326. 19. 14·71	9
159. 14. 40·71	46. 51	+ 5·07	53·0	223·5	59·7	238·7	23·5	269·2	30·8	267·0	20·67	− 4·11	159. 14. 41·67	328. 17. 24·03	10
190. 34. 52·45	102. 18	− 3·76	53·0	224·5	61·0	240·7	24·5	272·5	32·5	270·6	22·41	− 1·34	190. 34. 47·35	179. 37. 29·71	11
10. 34. 43·87	102. 18	+ 3·76	47·8	219·0	54·5	234·5	18·5	266·0	27·0	263·6	16·36	+ 0·02	10. 34. 47·65	179. 37. 30·01	12
149. 21. 18·34	75. 5	+ 3·81	47·3	221·1	53·9	235·5	17·7	268·2	26·4	266·8	17·11	− 0·22	149. 21. 21·93	318. 24. 4·29	13
330. 31. 45·19	74. 33	− 3·82	52·2	225·3	58·8	240·4	23·0	273·8	31·6	271·5	22·08	+ 1·60	330. 31. 42·97	319. 34. 25·33	14
342. 46. 35·11	46. 1	− 5·12	50·8	224·1	57·8	239·1	22·0	272·0	30·6	270·0	20·80	+ 4·36	342. 46. 34·35	331. 49. 16·71	15
164. 21. 45·33	45. 40	+ 5·14	53·1	226·7	61·2	242·8	25·5	275·9	33·9	274·3	24·18	− 7·72	164. 21. 42·75	333. 24. 25·11	16
190. 34. 57·25	102. 18	− 3·76	56·4	229·5	64·7	246·3	29·2	279·3	38·0	277·6	27·63	− 2·47	190. 34. 51·02	179. 37. 33·38	17
10. 34. 47·54	102. 18	+ 3·76	45·4	218·5	52·2	233·5	15·8	265·5	24·0	263·2	14·76	− 0·33	10. 34. 50·97	179. 37. 33·33	18
327. 3. 34·55	50. 41	− 4·76	54·2	225·5	61·8	241·2	26·6	277·2	35·7	274·8	24·63	+ 6·84	327. 3. 36·63	316. 6. 18·99	19
148. 32. 9·00	50. 9	+ 4·79	47·7	219·2	54·7	234·0	19·3	269·2	27·8	266·6	17·31	− 0·86	148. 32. 12·93	317. 34. 55·29	20
130. 46. 48·30	81. 59	+ 3·72	47·6	219·2	54·6	233·8	18·0	268·2	27·3	266·1	16·85	− 0·08	130. 46. 51·94	299. 49. 34·30	21
313. 19. 11·29	80. 21	− 3·73	56·3	227·5	64·2	244·0	29·3	278·8	38·4	276·6	26·89	+ 1·80	313. 19. 9·36	302. 21. 51·72	22
10. 34. 47·11	102. 18	+ 3·76	49·3	220·8	56·2	235·7	19·8	268·6	28·8	266·7	18·24	+ 0·43	10. 34. 51·30	179. 37. 33·66	23
190. 34. 54·96	102. 18	− 3·76	53·7	224·8	60·4	240·0	24·2	273·0	33·3	271·0	22·55	− 1·37	190. 34. 49·83	179. 37. 32·19	24
101. 52. 3·08	72. 17	− 3·81	57·0	213·5	63·6	226·5	32·0	255·9	40·0	253·8	17·79	+ 0·63	101. 51. 59·90	90. 54. 35·40	25
283. 51. 21·64	73. 52	+ 3·78	60·0	216·8	67·0	230·0	37·2	259·8	43·5	257·5	21·48	− 1·64	283. 51. 23·78	92. 53. 59·28	26
190. 34. 55·18	102. 18	− 3·71	57·0	211·6	63·6	224·2	36·6	250·4	44·0	250·5	17·24	− 0·31	190. 34. 51·16	179. 37. 26·66	27
10. 34. 46·68	102. 18	+ 3·71	59·8	214·3	66·4	226·6	38·7	253·8	46·8	253·0	19·93	+ 0·90	10. 34. 51·29	179. 37. 26·79	28
86. 56. 53·12	58. 7	− 4·28	57·2	211·6	64·0	224·3	35·8	250·7	43·7	250·0	17·16	+ 0·85	86. 56. 49·69	75. 59. 25·19	29
269. 10. 51·80	59. 41	+ 4·20	61·3	215·6	67·8	228·2	40·0	255·8	47·3	254·5	21·31	− 3·22	269. 10. 52·78	78. 13. 28·28	30
165. 46. 43·98	41. 7	+ 5·52	62·0	216·8	68·8	229·3	40·7	257·0	48·0	255·3	22·24	− 7·38	165. 46. 42·12	334. 49. 17·62	31
347. 3. 6·30	40. 54	− 5·54	61·6	216·3	68·2	228·8	40·3	256·4	47·3	254·8	21·71	+ 6·82	347. 3. 7·58.	336. 5. 43·08	32
78. 11. 1·31	51. 2	− 4·67	57·7	215·4	64·5	228·2	34·1	258·7	40·8	257·6	19·63	+ 3·10	78. 10. 59·74	67. 13. 39·80	33
260. 58. 2·48	52. 42	+ 4·56	61·9	219·6	68·5	232·5	38·0	263·5	44·7	261·8	23·81	− 6·10	260. 58. 0·94	70. 0. 41·00	34
138. 14. 6·61	46. 32	+ 5·00	51·5	209·6	58·0	221·8	25·1	251·2	32·8	550·0	12·50	+ 3·13	138. 14. 14·74	307. 16. 54·80	35
320. 4. 33·72	45. 45	− 5·07	60·7	219·9	69·6	233·8	38·1	264·2	45·2	262·1	24·20	+ 8·18	320. 4. 36·83	309. 7. 16·89	36
10. 34. 47·28	102. 18	+ 3·71	60·4	218·6	67·2	231·9	36·2	261·0	43·2	258·7	22·15	+ 1·38	10. 34. 52·37	179. 37. 32·43	37
190. 34. 57·41	102. 18	− 3·71	61·4	219·6	68·0	232·5	37·1	261·3	44·3	259·0	22·90	− 1·55	190. 34. 52·15	179. 37. 32·21	38
232. 33. 40·84	39. 45	+ 5·68	58·0	217·0	64·9	229·9	37·5	258·0	44·6	257·0	20·86	− 6·08	232. 33. 40·44	41. 36. 16·25	39
55. 27. 40·56	40. 42	− 5·57	56·4	215·0	62·5	228·0	35·0	254·9	42·4	253·8	18·50	+ 3·14	55. 27. 38·13	44. 30. 13·94	40
340. 38. 28·98	42. 11	− 5·40	61·9	219·5	68·0	233·1	40·5	260·4	47·6	258·8	23·73	+ 8·75	340. 38. 32·33	329. 41. 8·14	41
162. 13. 17·56	41. 50	+ 5·44	55·3	213·8	61·2	225·8	33·0	252·3	40·4	251·0	16·60	− 0·89	162. 13. 22·11	331. 15. 57·92	42

Co-efficient of Correction for Collimation, Face Right, −3″·68.; from April 7, −3″·63.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 16″·28; from April 7, 15″·80.
Zero of Azimuth, 10°. 57′. 23″·74; March 28 to 31, 10°. 57′. 17″·64; April 7 and 8, 10°. 57′. 24″·50; April 9, 10°. 57′. 19″·94; April 10, 10°. 57′. 24″·19.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
April 21	D	1	*l* Leonis	Left	34·9	38·4	41·9	45·6	49·0	52·6	..	12. 30. 43·73	59·50	12. 31. 43·23	2·707	2·708	3·470	3·142
	D	2	*l* Leonis	Right	20·9	24·6	28·1	31·9	35·4	39·3	..	12. 37. 30·03	59·50	12. 38. 29·53	4·572	4·049	4·498	4·628
	D	3	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·015	2·632	3·181	3·012
	D	4	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·344	4·023	4·989	4·743
	D	5	☽ 2 L.....	Left	8·6	12·7	16·6	20·8	24·6	28·6	..	12. 52. 18·65	59·51	12. 53. 18·16	4·194	3·730	4·388	4·322
	D	6	☽ 2 L.....	Right	24·4	28·3	32·0	36·0	39·7	43·6	..	13. 24. 34·00	59·54	13. 25. 33·54	5·532	5·320	5·819	5·518
April 23	E	7	☽ 2 L.....	Right	43·9	47·6	51·1	54·8	58·4	2·0	+ 0·16	16. 46. 53·13	62·32	16. 47. 55·45	6·360	6·067	6·562	6·342
	E	8	☽ 2 L.....	Left	9·4	13·2	16·8	20·4	23·8	27·4	+ 0·16	16. 57. 18·66	62·33	16. 58. 20·99	3·162	2·807	3·535	3·286
	E	9	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·243	3·925	4·977	4·735
	E	10	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·982	2·747	2·930	2·648
	E	11	*α* Aquilæ ...	Right	39·1	42·9	46·2	50·2	53·6	57·2	+ 0·16	17. 38. 48·36	62·37	17. 39. 50·73	7·794	7·525	8·075	7·845
April 26	C	12	☽ 2 L.....	Right	52·4	56·3	59·9	3·8	7·8	11·6	− 0·12	17. 45. 1·85	6·87	17. 45. 8·72	1·652	1·578	1·994	1·540
	C	13	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·094	2·834	3·067	2·742
	C	14	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·482	4·140	4·938	4·630
April 27	E	15	☽ 2 L.....	Left	48·5	52·5	56·3	0·4	4·2	8·0	+ 0·16	18. 5. 58·48	8·43	18. 6. 6·91	6·815	6·290	7·237	7·216
	E	16	☽ 2 L.....	Right	54·7	58·6	2·3	6·3	10·2	14·2	+ 0·16	18. 15. 4·54	8·43	18. 15. 12·99	0·414	0·334	0·683	0·197
	E	17	*α* Aquilæ ...	Right	10·2	13·4	16·9	20·3	23·8	27·2	+ 0·16	18. 21. 18·79	8·43	18. 21. 27·24	4·830	4·550	5·070	4·735
	E	18	*α* Aquilæ ...	Left	46·0	49·4	53·0	56·2	59·5	3·1	+ 0·16	18. 26. 54·69	8·46	18. 27. 3·15	5·287	4·837	5·564	5·436
	E	19	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·228	3·887	4·870	4·597
	E	20	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·934	2·620	2·880	2·580
May 5	JC	21	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·269	3·943	4·944	4·809
	JC	22	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·053	2·722	3·151	2·912
	JC	23	*π* Leonis	Right	11·6	15·0	18·1	21·5	25·2	28·5	− 0·08	10. 46. 19·90	19·85	10. 46. 39·75	1·232	0·897	1·086	0·843
	JC	24	*π* Leonis	Left	37·2	40·4	43·8	47·5	50·8	54·3	− 0·08	10. 50. 45·59	19·85	10. 51. 5·44	3·542	3·416	4·084	3·781
	JC	25	☽ 1 L.....	Left	17·1	21·6	26·0	30·7	35·2	39·1	− 0·08	10. 55. 28·20	19·86	10. 55. 48·06	4·681	4·652	5·103	4·746
	JC	26	☽ 1 L.....	Right	14·0	18·2	22·9	27·1	31·5	36·2	− 0·08	11. 3. 24·90	19·87	11. 3. 44·77	8·109	7·624	8·319	8·494
May 6	E	27	☽ 1 L.....	Right	39·0	43·6	48·3	53·2	57·5	2·2	+ 0·16	11. 6. 50·79	21·25	11. 7. 12·04	2·765	2·325	2·713	2·806
	E	28	☽ 1 L.....	Left	41·2	45·8	50·4	55·3	59·9	4·2	+ 0·16	11. 17. 52·96	21·26	11. 18. 14·22	1·568	1·567	2·070	1·663
	E	29	Regulus	Right	51·6	55·1	58·7	2·3	5·7	9·4	+ 0·16	11. 26. 0·63	21·27	11. 26. 21·90	4·633	4·087	4·425	4·625
	E	30	Regulus	Left	56·2	59·8	3·8	7·3	10·5	14·3	+ 0·16	11. 33. 5·48	21·28	11. 33. 26·76	1·308	1·285	1·782	1·466
	E	31	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·227	3·897	4·870	4·706
	E	32	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·977	2·570	3·017	2·842
May 7	D	33	☽ 1 L.....	Left	33·8	38·6	43·3	48·0	52·7	57·0	..	10. 57. 45·57	22·61	10. 58. 8·18	2·385	2·452	2·985	2·608
	D	34	☽ 1 L.....	Right	57·4	2·0	6·7	11·5	16·0	21·0	..	11. 13. 9·10	22·63	11. 13. 31·73	5·192	4·704	5·269	5·427
	D	35	Regulus	Right	58·6	1·8	5·4	9·2	12·7	16·3	..	11. 27. 7·33	22·64	11. 27. 29·97	1·595	1·298	1·600	1·550
	D	36	Regulus	Left	48·6	52·3	55·9	59·4	3·3	6·5	..	11. 32. 57·67	22·65	11. 33. 20·32	5·841	5·770	6·410	6·187
	D	37	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·222	3·863	4·908	4·732
	D	38	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	2·980	2·693	3·056	2·862
May 8	C	39	☽ 1 L.....	Left	49·1	53·4	57·8	2·4	6·7	11·3	− 0·12	10. 41. 0·00	24·09	10. 41. 24·09	2·032	1·876	2·370	2·000
	C	40	☽ 1 L.....	Right	0·1	4·7	9·0	13·5	17·8	22·4	− 0·12	10. 53. 11·13	24·11	10. 53. 35·24	4·800	4·090	4·516	4·750
	C	41	*π* Leonis	Right	24·5	27·7	31·2	34·5	38·0	41·4	− 0·12	11. 2. 32·76	24·12	11. 2. 56·88	9·897	9·430	9·458	9·250
	C	42	Bradley 1396	Left	50·0	53·5	57·0	0·3	3·8	7·1	− 0·12	11. 11. 58·50	24·14	11. 12. 22·64	2·004	1·736	2·362	2·065
	C	43	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·572	4·110	4·876	4·727
	C	44	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·320	2·679	3·134	3·000

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^r{\cdot}8$ of *a*, to $7^r{\cdot}7$ of *b*, to $7^r{\cdot}9$ of *c*, and to $8^r{\cdot}0$ of *d*.

Correction for Runs of Microscopes for 100″, − 0″·24; from May 5, −0″·37.

12. Cloudy.

41. The cross-wires of all the microscopes fell on the negative side of the micrometer-zero. The fractional parts of the readings were taken from the micrometer-heads, 9 in the integers representing − 1.

May 2 to 9. The instrument was cleaned by a workman from Mr. Simms.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
229. 46. 54·54	45. 57	+ 5·05	57·0	222·0	65·6	237·7	33·7	269·6	41·5	268·0	24·39	− 8·31	229. 46. 51·28	38. 49. 36·77	1
51. 52. 49·08	46. 37	− 4·99	47·2	212·4	55·2	227·8	20·4	258·8	30·9	257·2	13·74	− 1·95	51. 52. 42·14	40. 55. 27·63	2
10. 34. 48·14	102. 18	+ 3·71	52·1	217·2	60·0	231·8	26·7	261·6	34·3	259·4	17·89	+ 0·46	10. 34. 52·31	179. 37. 37·80	3
190. 34. 57·03	102. 18	− 3·71	54·0	219·1	61·8	233·8	28·8	263·6	36·6	262·1	19·98	− 0·91	190. 34. 52·41	179. 37. 37·90	4
141. 52. 38·45	81. 40	+ 3·67	48·6	214·0	56·0	228·2	27·0	258·2	30·3	256·6	14·86	+ 0·14	141. 52. 42·26	310. 55. 27·75	5
328. 38. 31·47	78. 17	− 3·71	62·0	226·6	70·8	242·8	37·4	271·8	45·0	269·4	28·23	+ 2·57	328. 38. 30·33	317. 41. 15·82	6
351. 49. 1·42	72. 34	− 3·80	59·5	213·0	68·5	227·0	38·2	255·5	43·7	252·8	19·77	+ 1·25	351. 48. 58·87	340. 51. 38·04	7
174. 17. 1·83	72. 6	+ 3·82	61·5	214·8	69·2	228·0	40·0	256·7	46·2	255·0	21·43	− 1·82	174. 17. 3·83	343. 19. 43·00	8
190. 34. 54·92	102. 18	− 3·71	58·5	212·0	67·0	226·2	36·5	253·0	43·5	251·8	18·56	− 0·60	190. 34. 50·61	179. 37. 29·78	9
10. 34. 43·14	102. 18	+ 3·71	61·5	214·9	68·7	228·2	39·5	255·0	45·8	254·7	21·04	+ 1·14	10. 34. 47·99	179. 37. 27·16	10
329. 4. 57·73	49. 57	− 4·74	61·5	215·3	69·5	229·2	39·8	256·3	46·4	255·3	21·66	+ 4·93	329. 4. 57·92	318. 7. 37·09	11
328. 41. 4·48	76. 43	− 3·73	55·2	219·4	63·6	234·5	33·0	264·5	41·2	263·1	21·81	+ 1·42	328. 41. 2·17	317. 43. 46·17	12
10. 34. 47·25	102. 18	+ 3·71	55·2	219·4	63·6	234·4	33·1	263·7	41·2	262·8	21·68	+ 1·28	10. 34. 52·24	179. 37. 36·24	13
190. 34. 57·95	102. 18	− 3·71	56·0	219·9	65·0	236·0	33·9	264·4	41·9	263·1	22·53	+ 1·47	190. 34. 52·77	179. 37. 36·77	14
140. 59. 22·52	77. 38	+ 3·72	51·0	214·5	60·6	231·3	27·5	262·5	35·3	261·2	17·99	− 0·48	140. 59. 25·76	310. 2. 12·39	15
322. 55. 15·53	76. 35	− 3·73	56·5	219·6	66·7	238·5	34·0	269·4	42·5	267·0	24·28	+ 2·03	322. 55. 13·83	311. 58. 0·46	16
341. 58. 2·84	46. 11	− 5·03	55·5	218·5	65·0	235·6	32·2	266·8	39·2	265·0	22·23	+ 6·17	341. 58. 3·98	331. 0. 50·61	17
163. 48. 21·25	45. 47	+ 5·06	53·8	217·3	63·0	233·5	30·0	264·2	37·0	262·8	20·20	− 4·28	163. 48. 22·03	332. 51. 8·66	18
190. 34. 52·10	102. 18	− 3·71	53·5	217·2	63·0	233·5	30·2	264·0	37·5	262·2	20·14	− 0·95	190. 34. 47·44	179. 37. 34·07	19
10. 34. 40·35	102. 18	+ 3·71	55·0	218·5	64·5	235·5	31·4	265·2	39·3	263·5	21·61	+ 1·27	10. 34. 45·33	179. 37. 31·96	20
190. 34. 55·51	102. 18	− 3·55	65·3	196·2	74·0	207·8	56·8	226·3	54·3	218·7	12·43	+ 0·70	190. 34. 52·66	179. 37. 30·56	21
10. 34. 48·01	102. 18	+ 3·55	74·4	206·3	83·8	218·0	67·0	236·6	64·6	229·0	22·46	+ 1·48	10. 34. 53·04	179. 37. 30·94	22
30. 5. 38·67	44. 10	− 4·98	78·6	210·0	88·2	222·0	71·2	240·7	68·3	232·8	26·48	+ 11·16	30. 5. 44·85	19. 8. 22·75	23
211. 37. 21·03	44. 24	+ 4·96	68·3	199·7	77·0	211·8	59·3	229·0	56·2	221·0	15·29	+ 0·37	211. 37. 26·36	20. 40. 4·26	24
298. 28. 2·58	83. 27	+ 3·49	72·8	204·7	82·7	216·8	63·8	234·0	61·3	226·2	20·29	− 0·53	298. 28. 5·54	107. 30. 43·44	25
119. 55. 9·69	84. 33	− 3·48	70·7	202·2	79·7	214·6	61·0	231·3	58·6	223·8	17·74	+ 0·20	119. 55. 6·41	108. 57. 44·31	26
109. 51. 40·93	74. 33	− 3·60	84·5	201·2	93·2	212·5	84·5	225·8	79·6	218·5	25·23	+ 2·64	109. 51. 39·97	98. 54. 18·90	27
291. 51. 4·81	76. 10	+ 3·57	74·5	191·5	84·7	203·0	71·5	214·2	67·2	206·5	14·14	+ 0·37	291. 51. 8·75	100. 53. 47·68	28
42. 32. 49·10	42. 29	− 5·14	85·7	202·5	96·2	213·0	83·3	226·0	79·2	219·2	25·69	+ 10·96	42. 32. 54·92	31. 35. 33·85	29
224. 55. 55·55	43. 5	+ 5·08	75·7	192·5	86·2	203·5	72·5	215·3	68·3	207·8	15·23	+ 0·45	224. 56. 1·08	33. 58. 40·01	30
190. 34. 52·98	102. 18	− 3·55	76·3	193·8	86·0	203·8	71·2	216·0	67·5	208·2	15·35	+ 0·07	190. 34. 49·50	179. 37. 28·43	31
10. 34. 43·88	102. 18	+ 3·55	80·0	197·5	90·8	208·5	76·7	221·0	73·5	213·8	20·23	+ 1·00	10. 34. 48·43	179. 37. 27·36	32
276. 21. 39·23	63. 15	+ 3·89	73·2	194·2	83·7	205·0	68·6	220·4	65·4	213·3	15·48	+ 0·09	276. 21. 43·21	85. 24. 22·14	33
99. 18. 15·91	65. 34	− 3·81	79·8	201·2	89·8	211·6	74·2	227·8	72·0	221·0	22·18	+ 2·96	99. 18. 15·06	88. 20. 53·99	34
42. 55. 57·49	42. 35	− 5·13	81·2	202·9	91·2	213·8	75·0	230·2	73·0	223·7	23·88	+ 8·95	42. 56. 1·31	31. 58. 40·24	35
224. 53. 50·36	43. 4	+ 5·08	75·1	197·1	84·9	207·7	67·8	223·3	65·1	216·2	17·15	− 1·61	224. 53. 53·83	33. 56. 32·76	36
190. 34. 53·21	102. 18	− 3·55	73·2	195·8	82·9	206·4	65·1	221·8	62·1	214·0	15·16	+ 0·11	190. 34. 49·77	179. 37. 28·70	37
10. 34. 45·65	102. 18	+ 3·55	78·5	201·4	89·0	212·6	71·8	228·0	68·8	220·5	21·33	+ 1·24	10. 34. 50·44	179. 37. 29·37	38
258. 46. 18·78	52. 14	+ 4·39	72·2	195·5	80·1	204·5	62·0	225·5	60·4	217·9	14·76	+ 0·69	258. 46. 23·86	67. 48. 57·64	39
81. 32. 52·75	53. 57	− 4·29	77·5	200·2	85·4	209·4	67·6	230·0	65·2	223·0	19·79	+ 3·01	81. 32. 51·47	70. 35. 25·25	40
35. 39. 41·35	45. 7	− 4·90	82·0	206·0	90·5	215·2	73·4	235·6	70·8	229·1	25·33	+ 9·64	35. 39. 46·09	24. 42. 19·87	41
219. 36. 17·68	45. 40	+ 4·85	73·0	197·4	81·4	207·3	63·0	226·8	60·4	219·7	16·13	− 0·47	219. 36. 22·06	28. 38. 55·84	42
190. 34. 58·60	102. 18	− 3·55	73·0	198·6	80·8	207·6	61·0	228·0	60·4	220·5	16·24	− 0·13	190. 34. 54·92	179. 37. 28·70	43
10. 34. 50·81	102. 18	+ 3·55	75·6	201·4	84·2	210·6	65·0	231·2	63·9	223·5	19·43	+ 0·82	10. 34. 55·18	179. 37. 28·96	44

Co-efficient of Correction for Collimation, Face Right, −3″·63; from May 5, −3″·47.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 15″·80; from May 5, 15″·65.
Zero of Azimuth, April 21, 10°. 57′. 14″·51; April 23, 10°. 57′. 20″·83; April 26, 10°. 57′. 16″·00; April 27, 10°. 57′. 13″·37; May 5, 10°. 57′. 22″·10; May 6 and 7, 10°. 57′. 21″·07; May 8, 10°. 57′. 26″·22.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
May 23	JC	1	α Aquilæ ...	Left	15·4	19·0	22·6	25·9	29·6	33·0	− 0·08	18. 2. 24·17	60·32	18. 3. 24·49	3·826	3·175	3·941	4·256
	JC	2	α Aquilæ ...	Right	23·9	27·6	30·8	34·7	38·0	41·6	− 0·08	18. 6. 32·69	60·32	18. 7. 33·01	0·763	0·376	0·951	0·814
	JC	3	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·423	2·879	3·262	3·367
	JC	4	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·652	4·048	5·124	5·334
May 24	D	5	☽ 2 L.....	Right	36·1	39·8	43·6	47·4	51·1	55·0	..	18. 35. 45·50	62·79	18. 36. 48·29	7·476	6·951	7·602	7·792
	D	6	☽ 2 L.....	Left	6·4	10·2	14·0	17·8	21·4	24·9	..	18. 44. 15·78	62·80	18. 45. 18·58	8·098	7·398	8·346	8·767
	D	7	α Aquilæ ...	Left	35·7	39·2	42·4	45·8	49·2	52·3	..	19. 1. 44·10	62·83	19. 2. 46·93	2·739	2·213	2·943	3·139
	D	8	α Aquilæ ...	Right	3·5	6·8	9·8	13·1	16·5	20·0	..	19. 7. 11·62	62·84	19. 8. 14·46	4·333	3·702	4·381	4·631
	D	9	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	4·789	4·229	4·708	4·873
	D	10	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	3·464	2·964	3·689	3·852
May 26	E	11	☽ 2 L.....	Left	48·0	51·4	55·0	58·6	2·0	5·3	+ 0·16	21. 21. 56·88	67·64	21. 23. 4·52	7·183	6·494	7·606	8·037
	E	12	☽ 2 L.....	Right	57·2	0·7	4·2	7·8	11·0	14·6	+ 0·16	21. 32. 6·08	67·66	21. 33. 13·74	2·496	2·076	2·536	2·515
	E	13	α Aquilæ ...	Right	40·5	44·0	47·5	51·2	54·8	58·5	+ 0·16	21. 38. 49·58	67·67	21. 39. 57·25	4·470	3·622	4·216	4·600
	E	14	α Aquilæ ...	Left	17·2	20·9	24·1	28·0	31·5	35·0	+ 0·16	21. 44. 26·28	67·68	21. 45. 33·96	4·435	4·149	4·876	4·982
	E	15	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·484	3·908	5·167	5·417
	E	16	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·446	2·834	3·286	3·404
May 27	JC	17	☽ 2 L.....	Left	21·0	24·9	28·7	33·0	36·8	40·7	− 0·08	19. 48. 30·77	10·15	19. 48. 40·92	3·564	2·926	3·523	3·918
	JC	18	☽ 2 L.....	Right	27·4	31·4	35·0	39·3	43·2	47·3	− 0·08	20. 0. 37·19	10·17	20. 0. 47·36	2·231	1·834	2·494	2·452
	JC	19	α Aquilæ ...	Left	9·7	13·2	16·4	19·8	23·0	26·3	− 0·08	20. 8. 17·99	10·18	20. 8. 28·17	1·780	1·334	2·232	2·524
	JC	20	α Aquilæ ...	Right	13·0	15·8	19·2	22·5	26·0	29·3	− 0·08	20. 13. 20·89	10·19	20. 13. 31·08	7·893	7·116	7·834	8·257
	JC	21	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·343	2·702	3·368	3·665
	JC	22	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·762	4·243	5·048	5·224
May 28	D	23	☽ 2 L.....	Left	19·0	23·3	27·4	31·6	35·8	39·7	..	20. 0. 29·47	12·52	20. 0. 41·99	1·753	1·125	1·720	2·220
	D	24	☽ 2 L.....	Right	32·6	36·7	40·7	45·1	49·4	53·4	..	20. 8. 42·98	12·53	20. 8. 55·51	0·310	0·058	0·618	0·641
	D	25	α Aquilæ ...	Right	23·5	26·7	29·9	33·3	36·4	39·8	..	20. 15. 31·60	12·55	20. 15. 44·15	3·977	3·335	3·930	4·303
	D	26	α Aquilæ ...	Left	26·0	29·3	32·6	36·0	39·2	42·4	..	20. 20. 34·25	12·56	20. 20. 46·81	7·982	7·493	8·301	8·528
	D	27	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·655	4·104	5·066	5·311
	D	28	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·278	2·660	3·326	3·562
June 6	D	29	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·297	3·728	3·368	3·580
	D	30	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·672	5·094	5·162	5·349
	D	31	☽ 1 L.....	Right	28·9	33·3	37·6	42·4	46·9	51·4	..	13. 51. 40·08	47·23	13. 52. 27·31	7·066	7·267	6·995	7·512
	D	32	☽ 1 L.....	Left	44·6	49·1	53·6	58·1	2·9	7·4	..	13. 58. 55·95	47·25	13. 59. 43·20	4·078	4·859	4·542	4·504
	D	33	α Serpentis..	Left	10·6	14·2	17·6	21·0	24·5	27·9	..	14. 4. 19·30	47·26	14. 5. 6·56	5·630	5·875	6·102	6·303
	D	34	α Serpentis..	Right	50·0	53·2	56·6	0·0	3·4	7·1	..	14. 9. 58·38	47·27	14. 10. 45·65	0·988	1·586	1·107	1·078
June 8	JC	35	☽ 1 L.....	Right	50·0	53·3	56·8	0·2	3·7	7·2	− 0·08	12. 1. 58·45	53·15	12. 2. 51·60	6·586	6·793	6·356	6·792
	JC	36	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·593	5·014	5·185	5·416
	JC	37	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·474	3·943	3·292	3·416
	JC	38	☽ 1 L.....	Left	56·0	0·0	3·6	7·4	11·2	14·8	− 0·08	12. 59. 5·42	53·28	12. 59. 58·70	1·803	2·572	2·343	2·412
	JC	39	β Leonis....	Left	20·8	24·6	28·3	32·1	35·8	39·6	− 0·08	13. 44. 30·12	53·38	13. 45. 23·50	2·034	2·779	2·616	2·650
	JC	40	β Leonis....	Right	19·4	23·1	26·9	30·9	34·7	38·7	− 0·08	13. 59. 28·87	53·41	14. 0. 22·28	4·367	4·674	4·121	4·542
June 9	E	41	☽ 1 L.....	Left	35·9	39·4	43·0	46·4	50·0	53·7	+ 0·16	13. 27. 44·89	56·33	13. 28. 41·22	4·787	5·508	5·048	5·269
	E	42	☽ 1 L.....	Right	53·6	57·1	0·5	4·3	7·7	11·6	+ 0·16	13. 33. 2·63	56·34	13. 33. 58·97	2·567	2·925	2·316	2·803
	E	43	β Leonis....	Right	2·5	6·1	9·9	13·7	17·4	21·4	+ 0·16	13. 42. 11·97	56·36	13. 43. 8·33	7·175	7·422	6·825	7·324
	E	44	β Leonis....	Left	20·2	24·1	28·3	31·8	36·0	39·6	+ 0·16	13. 50. 30·16	56·37	13. 51. 26·53	4·013	4·757	4·315	4·525

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, − 0″·37; from June 6, − 0″·17.

35, 38. Cloudy.

June 1. The comb or revolution-counter of microscope *b* was moved through a space equivalent to an increase of one revolution of the micrometer-head.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
156. 12. 24·59	47. 41	+ 4·69	43·8	213·0	53·2	230·0	16·6	260·5	18·0	251·2	10·79	+ 4·42	156. 12. 33·70	325. 15. 0·19	1
337. 30. 27·56	47. 19	− 4·72	57·7	227·2	68·8	246·0	33·6	277·6	35·0	267·8	26·71	+ 10·20	337. 30. 33·04	326. 32. 59·53	2
10. 34. 58·36	102. 18	+ 3·55	55·0	224·0	65·2	242·3	29·4	273·2	31·2	264·0	23·04	+ 1·61	10. 35. 3·52	179. 37. 30·01	3
190. 35. 6·99	102. 18	− 3·55	45·8	215·2	55·3	232·0	18·2	261·8	19·7	253·0	12·63	+ 0·66	190. 35. 4·10	179. 37. 30·59	4
332. 29. 43·75	73. 30	− 3·62	59·4	226·3	70·2	245·0	36·8	276·7	37·1	267·4	27·36	+ 3·47	332. 29. 43·60	321. 32. 14·91	5
154. 25. 10·19	72. 43	+ 3·63	42·5	210·0	52·2	226·6	15·6	256·2	17·3	247·5	8·49	+ 2·23	154. 25. 16·05	323. 27. 47·36	6
176. 1. 44·87	43. 47	+ 5·01	47·8	215·4	57·0	231·8	21·1	262·2	22·2	252·9	13·80	+ 1·93	176. 1. 51·81	345. 4. 23·12	7
357. 57. 42·13	43. 35	− 5·03	56·2	224·0	66·1	241·3	31·7	272·6	32·6	263·1	23·45	+ 8·20	357. 57. 45·30	347. 0. 16·61	8
10. 35. 0·00	102. 18	+ 3·55	57·5	225·3	68·0	243·2	33·2	274·0	33·9	264·2	24·91	+ 2·02	10. 35. 5·57	179. 37. 36·88	9
190. 35. 9·79	102. 18	− 3·55	49·7	217·4	59·0	234·1	22·8	263·4	24·0	254·8	15·65	0·00	190. 35. 6·24	179. 37. 37·55	10
166. 4. 38·84	61. 48	+ 3·94	58·6	207·0	66·7	220·2	39·5	249·0	38·7	240·5	15·03	+ 0·33	166. 4. 43·11	335. 7. 14·42	11
348. 46. 31·53	61. 9	− 3·96	62·8	211·6	71·3	225·8	44·5	255·0	45·6	244·8	20·18	+ 2·50	348. 46. 30·07	337. 49. 1·38	12
50. 12. 41·65	49. 3	− 4·59	66·5	214·3	75·0	228·0	46·8	256·2	47·0	247·5	22·66	+ 6·08	50. 12. 43·14	39. 15. 14·45	13
231. 52. 55·41	49. 38	+ 4·55	58·7	207·0	66·8	221·6	39·8	248·3	39·2	239·3	15·09	+ 0·48	231. 53. 0·44	40. 55. 31·75	14
190. 35. 5·00	102. 18	− 3·55	57·0	205·6	65·5	219·5	38·3	246·2	37·0	237·3	13·30	+ 0·51	190. 35. 1·96	179. 37. 33·27	15
10. 34. 58·73	102. 18	+ 3·55	63·5	212·0	71·7	226·0	45·5	251·8	44·0	243·8	19·79	+ 0·90	10. 35. 3·18	179. 37. 34·49	16
129. 42. 12·46	73. 18	+ 3·62	59·7	213·2	69·3	228·2	39·5	257·2	40·0	248·6	19·46	− 1·14	129. 42. 14·94	298. 44. 46·25	17
312. 16. 25·66	71. 41	− 3·65	61·4	215·0	70·2	229·6	41·0	257·4	41·2	249·6	20·68	+ 1·66	312. 16. 23·67	301. 18. 54·98	18
199. 41. 14·70	43. 13	+ 5·07	55·3	208·8	63·8	223·2	33·6	250·2	34·4	242·6	13·99	+ 1·77	199. 41. 21·54	8. 43. 52·85	19
21. 29. 55·70	43. 21	− 5·06	57·5	211·3	67·2	226·2	37·0	253·6	37·2	245·6	16·95	+ 1·38	21. 29. 52·02	10. 32. 23·33	20
10. 34. 59·12	102. 18	+ 3·55	57·9	211·5	67·6	227·0	37·2	254·6	37·6	245·8	17·40	+ 0·38	10. 35. 3·05	179. 37. 34·36	21
190. 35. 8·00	102. 18	− 3·55	58·6	212·2	67·7	227·1	37·2	254·0	37·6	246·3	17·59	− 0·42	190. 35. 4·03	179. 37. 35·34	22
128. 51. 4·72	75. 22	+ 3·59	62·9	207·8	72·7	220·3	45·8	246·7	45·8	239·4	17·68	− 0·53	128. 51. 7·78	287. 53. 39·09	23
310. 30. 15·36	74. 11	− 3·61	64·4	209·2	73·8	222·5	46·6	248·0	46·5	239·8	18·85	+ 0·91	310. 30. 12·66	289. 32. 43·97	24
22. 17. 27·83	43. 25	− 5·05	62·8	208·1	72·7	221·8	45·0	246·2	45·2	238·8	17·58	+ 2·04	22. 17. 24·82	11. 19. 56·13	25
204. 5. 7·35	43. 35	+ 5·03	64·8	209·8	73·9	223·0	46·9	247·7	46·7	240·2	19·13	− 3·66	204. 5. 8·72	13. 7. 40·03	26
190. 35. 6·59	102. 18	− 3·55	62·2	207·9	72·0	221·8	45·0	246·4	45·0	238·9	17·40	− 0·38	190. 35. 2·66	179. 37. 33·97	27
10. 34. 57·30	102. 18	+ 3·55	63·7	209·1	72·9	222·7	46·0	246·4	45·9	238·8	18·19	+ 0·55	10. 35. 1·40	179. 37. 32·71	28
10. 35. 8·66	102. 18	+ 3·80	66·9	212·1	78·8	227·5	53·6	252·0	52·4	243·8	23·39	+ 1·93	10. 35. 14·39	179. 37. 32·86	29
190. 35. 18·03	102. 18	− 3·80	56·2	200·7	68·0	216·8	40·8	237·2	40·7	230·0	11·30	+ 0·70	190. 35. 14·93	179. 37. 33·40	30
95. 29. 35·09	68. 47	− 3·98	61·7	206·5	73·0	221·8	45·8	244·2	46·2	236·8	17·00	+ 0·96	95. 29. 32·07	84. 31. 50·54	31
276. 52. 51·60	69. 53	+ 3·95	62·8	207·7	74·8	223·5	48·2	245·7	47·9	238·3	18·61	− 1·49	276. 52. 54·06	85. 55. 12·53	32
159. 33. 49·88	48. 33	+ 4·95	51·2	196·0	62·7	211·5	34·7	232·2	34·2	224·8	5·91	+ 7·61	159. 34. 2·44	328. 36. 20·91	33
341. 20. 45·49	48. 6	− 4·99	69·8	214·5	81·8	230·6	56·2	253·3	55·2	245·2	25·83	+ 10·14	341. 20. 50·64	330. 23. 9·11	34
36. 9. 13·07	47. 57	− 5·00	69·2	211·7	81·3	228·0	56·8	251·3	56·4	244·5	24·90	+ 9·35	36. 9. 17·42	25. 11. 37·48	35
190. 35. 17·33	102. 18	− 3·80	53·0	195·6	64·8	211·7	38·0	234·4	38·5	227·7	7·96	+ 1·43	190. 35. 14·96	179. 37. 35·02	36
10. 35. 10·21	102. 18	+ 3·80	71·2	214·0	83·3	230·8	58·4	255·0	57·9	246·8	27·18	+ 2·77	10. 35. 16·78	179. 37. 36·84	37
232. 56. 27·10	52. 51	+ 4·66	59·0	203·2	70·9	219·0	43·8	241·6	43·8	235·0	14·54	− 0·01	232. 56. 31·75	41. 58. 51·81	38
236. 31. 36·14	43. 42	+ 5·37	58·7	203·6	70·0	219·2	41·6	242·2	42·4	235·0	14·09	+ 0·46	236. 31. 41·97	45. 34. 2·03	39
61. 2. 48·93	45. 26	− 5·21	65·2	210·0	77·0	225·9	48·3	249·0	48·8	241·9	20·76	+ 6·14	61. 2. 49·86	50. 5. 9·92	40
224. 23. 16·75	54. 33	+ 4·56	62·5	197·5	74·5	212·2	54·0	231·5	52·2	224·8	13·65	+ 0·63	224. 23. 21·94	33. 25. 42·00	41
45. 51. 41·31	55. 1	− 4·53	72·5	207·3	85·0	222·5	63·0	242·5	62·8	236·0	23·95	+ 6·59	45. 51. 43·37	34. 54. 3·43	42
55. 49. 34·28	43. 27	− 5·39	75·8	211·2	88·5	226·5	66·5	245·4	65·2	239·3	27·30	+ 13·49	55. 49. 42·38	44. 52. 2·44	43
238. 22. 48·02	44. 23	+ 5·31	65·5	201·2	77·5	215·5	55·5	234·3	53·3	227·3	16·26	− 1·77	238. 22. 51·56	47. 25. 11·62	44

Co-efficient of Correction for Collimation, Face Right, −3″·47; from June 6, −3″·71.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 15″·65; from June 6, 14″·53.
Zero of Azimuth, 10°. 57′. 33″·51; May 24 to 28, 10°. 57′. 28″·69; June 6, 10°. 57′. 41″·53; June 8 and 9, 10°. 57′. 39″·94.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, +2′. 4″·66, and, for Face Left, −2′. 4″·66.

9, 10. The Collimator was bisected by wire *s*; the correction applied is, for Face Right, −2′. 3″·04, and, for Face Left, +2′. 3″·04.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. *a*	*b*	*c*	*d*
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
June 22	S	1	γ Aquilæ ...	Left	45·0	48·4	51·9	55·4	59·0	2·3	+ 0·04	18. 0. 53·71	36·22	18. 1. 29·93	1·650	1·989	1·812	2·049
	S	2	α Aquilæ ...	Right	0·4	3·8	7·2	10·4	14·0	17·5	+ 0·04	18. 9. 8·92	36·24	18. 9. 45·16	3·245	3·711	3·290	3·534
	S	3	☽ 2 L.....	Left	0·0	4·3	8·6	12·4	16·6	20·5	+ 0·04	18. 22. 10·44	36·27	18. 22. 46·71	1·272	1·604	1·227	1·711
	S	4	☽ 2 L.....	Right	47·0	51·1	55·0	59·2	3·2	7·4	+ 0·04	18. 34. 57·19	36·30	18. 35. 33·49	1·758	2·365	2·147	2·035
June 24	JC	5	☽ 2 L.....	Right	41·5	45·6	49·7	54·4	58·4	2·3	− 0·08	19. 27. 51·89	42·30	19. 28. 34·19	6·951	7·629	7·253	7·361
	JC	6	☽ 2 L.....	Left	21·1	25·4	29·7	33·6	38·0	42·0	− 0·08	19. 36. 31·55	42·31	19. 37. 13·86	3·322	3·683	3·292	3·818
	JC	7	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·590	5·049	4·980	5·251
	JC	8	Collimator ..	Left	..	..	..	..	..	..	..	...	.	...	3·269	3·734	3·264	3·468
	JC	9	α Aquilæ ...	Right	27·1	30·4	33·4	36·8	40·0	43·4	− 0·08	20. 0. 35·10	42·36	20. 1. 17·46	1·688	2·215	1·631	1·861
	JC	10	α Aquilæ ...	Left	51·6	54·9	58·1	1·6	4·7	8·1	− 0·08	20. 4. 59·75	42·37	20. 5. 42·12	2·152	2·723	2·432	2·650
June 26	D	11	☽ 2 L.....	Right	39·0	43·4	47·4	52·2	56·5	0·8	..	20. 44. 49·88	46·55	20. 45. 36·43	5·016	5·819	5·460	5·530
	D	12	☽ 2 L.....	Left	32·3	36·9	41·0	45·6	50·0	54·0	..	20. 57. 43·30	46·56	20. 58. 29·86	2·379	2·728	2·269	2·838
	D	13	α Aquilæ ...	Left	14·1	17·9	21·1	24·7	28·1	31·7	..	21. 15. 22·93	46·57	21. 16. 9·50	0·339	1·085	0·703	0·832
	D	14	α Aquilæ ...	Right	39·9	43·6	47·0	50·4	54·0	57·5	..	21. 20. 48·73	46·58	21. 21. 35·31	5·890	6·158	5·861	6·287
	D	15	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·203	3·616	3·229	3·476
	D	16	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·569	5·054	5·041	5·272
July 4	E	17	☽ 1 L.....	Left	54·6	59·2	3·7	8·1	12·6	16·8	+ 0·16	15. 3. 5·99	53·31	15. 3. 59·30	7·056	7·922	7·526	7·590
	E	18	☽ 1 L.....	Right	30·5	35·4	39·7	44·4	48·8	53·4	+ 0·16	15. 9. 42·19	53·31	15. 10. 35·50	5·026	5·336	4·825	5·458
	E	19	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·233	3·650	3·230	3·475
	E	20	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·703	5·107	5·030	5·228
July 5	D	21	☽ 1 L.....	Left	41·7	46·0	50·4	54·8	59·2	3·3	..	15. 5. 52·57	54·49	15. 6. 47·06	0·464	1·356	0·952	0·925
	D	22	☽ 1 L.....	Right	57·1	1·4	5·4	9·9	14·4	18·8	..	15. 15. 7·83	54·49	15. 16. 2·32	7·757	7·938	7·662	8·309
	D	23	α Serpentis .	Left	53·0	56·1	59·3	2·7	5·9	9·1	..	15. 50. 1·02	54·52	15. 50. 55·54	2·096	2·621	2·329	2·512
	D	24	α Serpentis .	Right	58·8	1·7	5·1	8·4	11·6	15·0	..	15. 55. 6·77	54·52	15. 56. 1·29	6·392	6·637	6·344	6·698
	D	25	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·628	5·058	5·207	5·435
	D	26	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·396	3·778	3·390	3·625
July 7	C	27	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·790	5·290	5·189	5·370
	C	28	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·378	3·814	3·400	3·624
	C	29	☽ 1 L.....	Right	21·8	25·4	29·1	33·2	37·0	40·7	− 0·12	15. 12. 31·08	56·99	15. 13. 28·07	1·376	1·750	1·190	1·546
	C	30	☽ 1 L.....	Left	25·8	29·6	33·5	37·4	41·4	45·0	− 0·12	15. 20. 35·33	57·00	15. 21. 32·33	5·372	6·155	5·926	6·000
	C	31	α Serpentis .	Left	10·3	13·6	17·0	20·1	23·4	26·5	− 0·12	15. 28. 18·36	57·00	15. 29. 15·36	3·214	3·680	3·786	3·984
	C	32	α Serpentis .	Right	44·3	47·4	50·7	54·0	57·2	0·5	− 0·12	15. 33. 52·23	57·01	15. 34. 49·24	0·334	0·776	0·364	0·460
July 8	E	33	α Serpentis .	Right	59·1	2·0	5·6	9·0	12·0	15·6	+ 0·16	15. 59. 7·38	57·80	16. 0. 5·18	7·305	7·666	7·196	7·527
	E	34	α Serpentis .	Left	19·0	22·2	25·7	28·8	32·2	35·5	+ 0·16	16. 4. 27·39	57·81	16. 5. 25·20	2·326	2·917	2·595	2·858
	E	35	☽ 1 L.....	Left	42·5	46·4	50·3	54·3	58·0	1·9	+ 0·16	16. 24. 52·39	57·82	16. 25. 50·21	5·047	5·835	5·615	5·740
	E	36	☽ 1 L.....	Right	13·4	17·2	21·1	25·3	29·1	33·3	+ 0·16	16. 35. 23·39	57·83	16. 36. 21·22	2·458	2·794	2·137	2·762
	E	37	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·214	3·726	3·340	3·465
	E	38	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·726	5·170	4·967	5·180
July 9	D	39	☽ 1 L.....	Right	28·9	32·2	35·6	39·2	42·6	46·0	..	15. 12. 37·42	58·84	15. 13. 36·26	4·625	5·027	4·511	4·928
	D	40	☽ 1 L.....	Left	22·7	26·2	29·9	33·4	36·7	40·1	..	15. 23. 31·50	58·85	15. 24. 30·35	5·532	6·193	5·974	6·097
	D	41	α Serpentis .	Left	26·8	30·3	33·4	37·0	40·0	43·2	..	15. 28. 35·12	58·85	15. 29. 33·97	5·809	6·241	6·399	6·690
	D	42	α Serpentis .	Right	20·0	23·2	26·4	29·7	33·1	36·4	..	15. 33. 28·13	58·86	15. 34. 26·99	3·859	4·286	3·829	4·020
	D	43	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·405	3·911	3·276	3·406
	D	44	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·670	5·135	5·104	5·296

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, − 0″·17; from July 4, 0″·00.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
156. 6. 11·53	45. 48	+ 5·18	58·5	200·7	71·5	217·2	43·8	234·8	43·1	228·2	12·23	+ 2·24	156. 6. 18·95	325. 8. 34·55	1
338. 12. 8·69	47. 8	− 5·06	70·3	213·1	83·9	230·2	56·9	248·3	56·9	241·5	25·14	+ 9·85	338. 12. 13·48	327. 14. 29·08	2
129. 15. 55·45	80. 19	+ 3·76	61·8	203·8	74·3	221·2	46·5	239·3	46·9	232·6	15·80	− 0·22	129. 15. 58·99	298. 18. 14·59	3
311. 51. 21·21	78. 38	− 3·78	67·3	209·9	80·2	226·5	51·5	245·2	51·8	238·1	21·31	+ 1·36	311. 51. 18·79	300. 53. 34·39	4
297. 44. 38·54	78. 38	− 3·78	63·3	207·2	76·6	224·5	49·2	247·0	49·3	240·4	19·69	+ 1·04	297. 44. 35·80	286. 46. 51·40	5
119. 27. 14·63	77. 22	+ 3·80	60·2	204·3	73·8	222·0	46·2	244·8	46·6	237·5	16·93	− 0·54	119. 27. 17·89	288. 29. 33·49	6
190. 35. 14·16	102. 18	− 3·80	57·2	201·6	70·8	219·3	42·0	240·7	42·4	234·2	13·53	+ 0·22	190. 35. 10·58	179. 37. 26·18	7
10. 35. 6·42	102. 18	+ 3·80	64·6	209·3	78·3	227·4	50·4	249·7	50·6	242·3	21·58	+ 1·54	10. 35. 11·76	179. 37. 27·36	8
17. 6. 10·07	43. 5	− 5·43	67·3	212·0	80·4	229·8	52·7	251·8	52·7	244·6	23·91	+ 10·03	17. 6. 14·67	6. 8. 30·27	9
198. 41. 34·98	43. 10	+ 5·42	58·0	202·8	71·3	220·2	42·1	241·8	43·3	235·5	14·38	+ 0·16	198. 41. 40·56	7. 43. 56·16	10
286. 43. 28·24	76. 11	− 3·82	62·8	207·7	75·2	224·6	48·7	248·3	49·3	241·2	19·73	+ 1·28	286. 43. 25·70	275. 45. 45·34	11
109. 11. 37·43	74. 14	+ 3·85	60·7	206·2	73·3	223·2	45·0	246·3	45·1	239·2	17·38	− 0·80	109. 11. 40·48	278. 14. 0·12	12
222. 50. 28·26	46. 54	+ 5·08	60·9	207·3	73·7	224·6	44·8	247·9	45·4	240·6	18·15	− 3·39	222. 50. 29·95	31. 52. 49·59	13
44. 33. 50·80	47. 21	− 5·05	59·7	206·5	73·0	224·4	42·6	246·4	43·5	239·2	16·91	+ 2·19	44. 33. 47·94	33. 36. 7·58	14
10. 35. 4·39	102. 18	+ 3·80	62·9	210·2	76·1	228·4	46·8	250·8	46·9	243·2	20·66	+ 1·34	10. 35. 9·53	179. 37. 29·17	15
190. 35. 14·79	102. 18	− 3·80	56·2	203·9	69·2	222·0	39·0	243·1	39·4	236·2	13·63	+ 0·20	190. 35. 11·19	179. 37. 30·83	16
281. 39. 47·61	76. 2	+ 4·01	65·8	197·2	81·3	216·2	61·0	231·5	59·3	225·5	17·23	− 0·90	281. 39. 50·72	90. 42. 11·44	17
102. 53. 17·27	77. 2	− 3·99	67·5	199·0	82·0	217·5	62·5	233·8	60·8	227·5	18·83	+ 1·20	102. 53. 14·48	91. 55. 35·20	18
10. 35. 5·25	102. 18	+ 3·98	73·5	206·5	89·7	225·5	67·3	240·0	66·2	234·3	25·38	+ 2·56	10. 35. 11·79	179. 37. 32·51	19
190. 35. 16·38	102. 18	− 3·98	60·5	193·5	76·5	212·5	53·5	226·3	52·3	220·4	11·94	+ 0·37	190. 35. 12·77	179. 37. 33·49	20
268. 30. 35·39	70. 49	+ 4·12	64·8	201·0	79·8	218·5	55·0	238·8	55·2	232·9	18·25	− 1·61	268. 30. 37·90	77. 32. 58·62	21
90. 20. 2·54	72. 12	− 4·08	63·7	199·5	78·8	217·6	53·0	237·1	53·4	231·3	16·80	+ 1·02	90. 19. 59·48	79. 22. 20·20	22
195. 36. 31·35	44. 42	+ 5·53	61·3	197·5	76·0	215·3	50·0	233·2	49·2	226·4	13·61	+ 0·01	195. 36. 36·89	4. 38. 57·61	23
17. 24. 9·12	44. 46	− 5·52	69·8	206·0	85·4	224·5	59·8	242·9	59·2	236·0	22·95	+ 9·40	17. 24. 13·00	6. 26. 33·72	24
190. 35. 18·81	102. 18	− 3·98	58·1	194·3	73·2	212·5	47·0	228·9	46·6	222·4	10·38	+ 0·71	190. 35. 15·54	179. 37. 36·26	25
10. 35. 10·97	102. 18	+ 3·98	69·8	206·3	85·6	225·7	60·1	241·1	59·7	234·4	22·84	+ 2·01	10. 35. 16·96	179. 37. 37·68	26
190. 35. 21·81	102. 18	− 3·98	55·0	192·2	70·0	210·2	45·9	226·6	45·2	220·5	8·20	+ 1·18	190. 35. 19·01	179. 37. 40·59	27
10. 35. 11·23	102. 18	+ 3·98	73·0	209·8	89·5	229·6	66·0	247·2	65·6	241·0	27·71	+ 3·07	10. 35. 18·28	179. 37. 39·86	28
61. 35. 56·06	64. 17	− 4·28	71·4	208·6	87·1	227·6	63·4	244·4	62·5	238·0	25·38	+ 5·67	61. 35. 57·45	50. 38. 19·03	29
243. 28. 44·11	65. 16	+ 4·28	59·4	196·8	74·0	214·5	48·8	231·5	48·5	224·6	12·26	+ 0·63	243. 28. 49·02	52. 31. 10·60	30
187. 57. 20·05	44. 39	+ 5·53	53·0	190·8	68·2	208·6	41·7	224·4	41·8	218·0	5·81	+ 7·90	187. 57. 33·48	356. 59. 55·06	31
9. 55. 18·54	44. 37	− 5·54	72·4	209·6	88·4	228·8	63·7	246·5	63·3	239·8	26·56	+ 13·11	9. 55. 26·11	358. 57. 47·69	32
18. 49. 43·79	44. 51	− 5·52	72·7	209·5	89·5	229·0	67·0	247·2	66·4	239·5	27·60	+ 14·05	18. 49. 52·32	7. 52. 10·47	33
200. 41. 42·02	44. 59	+ 5·50	58·5	194·4	74·0	213·5	50·4	230·3	48·5	223·7	11·66	+ 1·96	200. 41. 49·48	9. 44. 7·63	34
244. 18. 32·48	70. 34	+ 4·12	60·3	197·0	75·6	216·2	51·2	232·6	49·7	226·6	13·65	− 0·01	244. 18. 36·59	53. 20. 54·74	35
66. 36. 37·03	71. 54	− 4·09	65·6	203·5	81·6	223·0	57·0	241·0	56·5	233·6	20·23	+ 2·16	66. 36. 35·10	55. 38. 53·25	36
10. 35. 6·74	102. 18	+ 3·98	69·2	209·3	86·0	229·7	59·0	247·0	58·0	240·0	24·78	+ 2·43	10. 35. 13·15	179. 37. 31·30	37
190. 35. 16·17	102. 18	− 3·98	56·8	197·0	73·0	216·9	44·8	233·7	44·7	226·8	11·71	+ 0·42	190. 35. 12·61	179. 37. 30·76	38
33. 3. 2·45	62. 41	− 4·38	72·1	205·5	88·3	223·3	67·6	240·0	67·8	233·7	24·79	+ 5·77	33. 3. 3·84	22. 5. 21·99	39
215. 53. 47·39	63. 23	+ 4·35	63·5	197·0	78·8	214·4	58·1	231·0	57·3	224·6	15·59	− 0·99	215. 53. 50·75	24. 56. 8·90	40
188. 4. 0·11	44. 39	+ 5·53	57·0	190·8	72·8	208·6	50·0	224·0	50·0	217·9	8·89	+ 4·79	188. 4. 10·43	357. 6. 28·58	41
9. 47. 32·89	44. 37	− 5·54	72·0	205·6	87·7	223·6	66·8	240·9	66·5	234·3	24·68	+ 11·20	9. 47. 38·55	358. 49. 56·70	42
10. 35. 9·20	102. 18	+ 3·98	74·8	209·1	90·5	227·6	67·1	243·0	66·4	236·6	26·89	+ 2·89	10. 35. 16·07	179. 37. 34·22	43
190. 35. 17·69	102. 18	− 3·98	61·2	195·9	76·3	213·2	52·1	228·0	51·3	221·8	12·48	+ 0·25	190. 35. 13·96	179. 37. 32·11	44

Co-efficient of Correction for Collimation, Face Right, − 3″·71 ; from July 4, − 3″·89.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 14″·53; from July 4, 13″·62.
Zero of Azimuth, 10°. 57′. 44″·40 ; June 26, 10°. 57′. 40″·36 ; July 4 and 5, 10°. 57′. 39″·28 ; July 7, 10°. 57′. 38″·42 ; July 8 to 10, 10°. 57′. 41″·85.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
July 21	JC	1	ε Pegasi	Right	1·4	4·7	8·2	11·2	15·0	18·5	— 0·08	22. 28. 9·75	15·97	22. 28. 25·72	6·411	6·743	6·158	6·480
	JC	2	ε Pegasi	Left	24·0	27·4	30·5	34·4	37·3	40·8	— 0·08	22. 33. 32·32	15·97	22. 33. 48·29	2·702	3·331	3·072	3·221
	JC	3	Collimator ..	Right	..	..	..	..	..	..	..	...	.	...	4·608	5·069	5·195	5·393
	JC	4	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·417	3·861	3·302	3·420
July 22	D	5	☽ 2 L.	Left	11·4	15·7	19·8	24·1	28·3	32·2	..	20. 19. 21·92	17·44	20. 19. 39·36	6·149	6·471	6·247	6·770
	D	6	☽ 2 L.	Right	0·4	4·6	8·6	12·9	17·1	21·1	..	20. 29. 10·78	17·45	20. 29. 28·23	5·398	6·066	5·701	5·843
	D	7	α Aquilæ ...	Left	45·2	48·6	52·0	55·4	58·8	2·0	..	20. 40. 53·67	17·46	20. 41. 11·13	4·628	5·205	5·155	5·334
	D	8	α Aquilæ ...	Right	4·3	7·5	10·8	14·3	17·7	21·2	..	20. 46. 12·63	17·47	20. 46. 30·10	3·892	4·211	3·784	4·133
	D	9	Collimator ..	Left	..	..	..	..	.	..	..	...	..	...	3·303	3·715	3·371	3·598
	D	10	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·725	5·180	5·130	5·312
July 23	HC	11	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·654	5·102	5·089	5·302
	HC	12	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·345	3·726	3·352	3·552
	HC	13	α Aquilæ ...	Left	33·6	36·8	40·3	43·7	46·9	50·2	— 0·03	19. 9. 41·89	18·86	19. 10. 0·75	7·739	8·100	8·019	8·336
	HC	14	☽ 2 L.	Left	16·6	21·0	25·4	30·0	34·2	38·6	— 0·03	20. 17. 27·60	18·93	20. 17. 46·53	5·477	5·697	5·462	6·103
	HC	15	☽ 2 L.	Right	28·1	32·0	36·1	40·4	44·9	48·8	— 0·03	21. 19. 38·35	19·00	21. 19. 57·35	0·500	1·251	0·808	0·763
July 24	E	16	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·598	5·073	5·196	5·407
	E	17	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·270	3·695	3·287	3·490
	E	18	α Aquilæ ...	Right	4·1	7·2	10·4	13·8	17·2	20·6	+ 0·16	20. 10. 12·38	20·54	20. 10. 32·92	1·278	1·797	1·125	1·227
	E	19	α Aquilæ ...	Left	15·4	18·8	21·8	25·4	28·6	32·0	+ 0·16	20. 15. 23·83	20·54	20. 15. 44·37	3·355	3·920	3·754	3·897
	E	20	☽ 2 L.	Left	53·0	57·6	1·8	6·6	10·8	15·3	+ 0·16	20. 23. 4·34	20·55	20. 23. 24·89	0·578	0·878	0·317	0·835
	E	21	☽ 2 L.	Right	17·5	21·8	26·2	31·0	35·0	39·7	+ 0·16	20. 31. 28·69	20·56	20. 31. 49·25	5·227	5·964	5·704	5·743
July 27	K	22	☽ 2 L.....	Left	51·0	55·4	0·9	5·5	9·9	14·5	+ 0·04	0. 1. 2·91	24·59	0. 1. 27·50	1·296	1·602	1·164	1·598
	K	23	☽ 2 L.....	Right	21·5	26·3	30·8	35·7	40·3	45·2	+ 0·04	0. 25. 33·34	24·61	0. 25. 57·95	2·014	2·813	2·448	2·417
	K	24	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·601	5·039	5·180	5·432
	K	25	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·384	3·804	3·329	3·549
Aug. 4	E	26	☽ 1 L.....	Right	56·8	0·7	4·7	9·0	13·0	17·2	+ 0·16	17. 7. 7·06	33·35	17. 7. 40·41	0·622	0·982	0·432	0·886
	E	27	α Ophiuchi ..	Right	50·7	53·9	57·3	0·8	4·4	7·8	+ 0·16	18. 21. 59·31	33·41	18. 22. 32·72	5·197	5·585	5·040	5·306
	E	28	α Ophiuchi ..	Left	..	24·4	27·7	31·3	34·6	37·9	+ 0·16	18. 27. 31·34	33·42	18. 28. 4·76	6·115	6·695	6·477	6·668
	E	29	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·685	5·130	5·187	5·464
	E	30	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·370	3·805	3·335	3·485
Aug. 6	E	31	☽ 1 L.	Right	19·4	23·0	27·0	30·9	34·8	38·6	+ 0·16	17. 35. 29·11	35·78	17. 36. 4·89	2·322	2·708	2·017	2·444
	E	32	☽ 1 L.	Left	18·4	22·2	26·2	30·1	34·0	38·0	+ 0·16	17. 44. 28·31	35·79	17. 45. 4·10	4·082	4·810	4·665	4·720
	E	33	α Aquilæ ...	Left	48·4	51·9	55·1	58·8	2·3	5·6	+ 0·16	18. 13. 57·18	35·81	18. 14. 32·99	5·480	5·706	5·822	6·278
	E	34	α Aquilæ ...	Right	58·4	1·5	4·8	8·4	12·1	15·7	+ 0·16	18. 19. 6·98	35·82	18. 19. 42·80	5·866	6·310	5·995	6·142
	E	35	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·385	3·860	3·257	3·407
	E	36	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·732	5·244	5·080	5·280
Aug. 8	L	37	☽ 1 L.....	Left	41·3	44·8	48·3	51·9	55·3	58·7	— 0·27	16. 40. 49·78	38·31	16. 41. 28·09	2·612	3·224	3·142	3·343
	L	38	☽ 1 L.....	Right	7·1	10·5	14·1	17·7	21·1	24·6	— 0·27	16. 58. 15·58	38·32	16. 58. 53·90	3·170	3·614	3·258	3·371
	L	39	α Serpentis .	Right	49·8	53·2	56·6	59·8	3·3	6·9	— 0·27	17. 10. 58·00	38·33	17. 11. 36·33	6·292	6·572	5·994	6·441
	L	40	α Serpentis .	Left	45·7	49·3	52·7	56·3	59·7	3·2	— 0·27	17. 15. 54·21	38·33	17. 16. 32·54	1·014	1·724	1·496	1·621
	L	41	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·652	5·131	5·280	5·468
	L	42	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·422	3·802	3·452	3·636

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^{r}\cdot8$ of *a*, to $7^{r}\cdot7$ of *b*, to $7^{r}\cdot9$ of *c*, and to $8^{r}\cdot0$ of *d*.
Correction for Runs of Microscopes for 100″, 0″·00; from August 4, −0″·16.

14. Cloudy; very faint.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
29. 19. 6·53	43. 27	− 5·66	65·8	207·7	84·6	230·2	57·3	250·0	58·0	243·7	24·66	+11·66	29. 19. 12·53	18. 21. 28·73	1
211. 11. 57·79	43. 44	+ 5·63	57·9	198·7	76·0	221·8	48·2	240·7	48·8	235·0	15·89	− 2·37	211. 12. 1·05	20. 14. 17·25	2
190. 35. 18·22	102. 18	− 3·98	53·0	194·7	71·2	217·0	42·7	235·0	43·6	229·2	10·80	+ 0·61	190. 35. 14·83	179. 37. 31·03	3
10. 35. 9·21	102. 18	+ 3·98	64·2	206·3	82·6	228·7	54·2	247·0	55·5	240·8	22·41	+ 1·92	10. 35. 15·11	179. 37. 31·31	4
119. 24. 4·93	74. 6	+ 4·05	59·7	199·5	78·8	221·5	48·7	241·0	47·8	234·0	16·38	− 0·79	119. 24. 8·19	288. 26. 26·57	5
301. 23. 39·88	72. 41	− 4·07	65·9	206·1	85·0	228·0	55·0	246·9	53·9	239·8	22·58	+ 2·80	301. 23. 38·61	290. 25. 56·99	6
211. 13. 14·15	44. 30	+ 5·55	57·8	197·9	76·8	220·0	46·2	238·1	46·1	231·4	14·29	− 0·68	211. 13. 19·02	20. 15. 37·40	7
33. 2. 33·12	44. 48	− 5·52	63·3	203·6	82·2	225·7	52·1	243·8	52·0	237·4	20·01	+ 6·43	33. 2. 34·03	22. 4. 52·41	8
10. 35. 9·03	102. 18	+ 3·98	65·3	206·0	83·8	227·6	54·5	245·0	53·5	238·3	21·75	+ 1·77	10. 35. 14·78	179. 37. 33·16	9
190. 35. 19·04	102. 18	− 3·98	58·2	199·0	76·6	220·3	47·5	236·9	46·9	230·6	14·50	− 0·19	190. 35. 14·87	179. 37. 33·25	10
190. 35. 17·12	102. 18	− 3·98	58·0	194·5	76·3	216·3	51·0	237·4	51·0	230·7	14·40	− 0·17	190. 35. 12·97	179. 37. 34·83	11
10. 35. 8·92	102. 18	+ 3·98	64·0	200·3	82·8	222·5	59·0	240·5	58·3	234·0	20·18	+ 1·43	10. 35. 14·33	179. 37. 36·19	12
178. 35. 7·77	43. 31	+ 5·65	58·5	194·4	76·7	216·0	51·3	231·5	51·0	225·2	13·08	+ 0·57	178. 35. 13·99	347. 37. 35·85	13
106. 13. 37·23	78. 46	+ 3·97	58·3	194·8	77·0	217·2	50·2	234·3	51·0	227·5	13·79	− 0·03	106. 13. 41·17	275. 16. 3·03	14
298. 25. 31·82	69. 30	− 4·15	67·5	204·2	86·3	226·5	61·5	238·5	60·8	231·7	22·13	+ 3·18	298. 25. 30·85	287. 27. 52·71	15
190. 35. 18·30	102. 18	− 3·98	54·0	196·5	72·6	219·8	43·7	239·2	43·5	232·5	12·73	+ 0·19	190. 35. 14·51	179. 37. 36·37	16
10. 35. 6·70	102. 18	+ 3·98	61·5	204·0	80·0	227·5	52·2	247·5	51·5	240·6	20·60	+ 1·52	10. 35. 12·20	179. 37. 34·06	17
20. 25. 51·97	43. 16	− 5·68	64·3	206·5	82·0	228·7	54·3	249·3	52·7	242·2	22·50	+ 9·43	20. 25. 55·72	9. 28. 17·58	18
202. 17. 22·62	43. 25	+ 5·66	57·5	201·5	76·7	223·6	47·2	244·0	46·0	236·8	16·69	− 3·24	202. 17. 25·04	11. 19. 46·90	19
94. 35. 24·95	82. 59	+ 3·92	53·7	196·2	71·8	220·0	41·5	238·8	40·7	232·0	11·84	+ 0·22	94. 35. 29·09	263. 37. 50·95	20
276. 8. 36·34	81. 44	− 3·93	65·0	208·0	83·5	231·5	53·0	251·0	53·0	243·2	23·53	+ 1·44	276. 8. 33·85	265. 10. 55·71	21
96. 0. 54·09	71. 17	+ 4·11	48·1	200·8	67·4	225·0	33·0	245·9	35·0	239·2	11·80	+ 0·62	96. 0. 58·82	265. 3. 20·68	22
280. 31. 32·67	67. 37	− 4·20	60·5	211·4	78·9	236·8	45·6	257·1	46·4	249·8	23·31	+ 3·99	280. 31. 32·46	269. 33. 54·32	23
190. 35. 18·09	102. 18	− 3·98	50·1	202·3	69·4	227·5	35·4	247·0	37·0	240·1	13·60	0·00	190. 35. 14·11	179. 37. 35·97	24
10. 35. 9·81	102. 18	+ 3·98	58·1	210·6	77·0	235·2	44·8	255·0	45·4	247·6	21·71	+ 1·76	10. 35. 15·55	179. 37. 37·41	25
78. 30. 27·91	77. 18	− 4·11	63·6	200·8	84·5	223·0	61·4	237·2	60·3	231·6	20·55	+ 1·42	78. 30. 25·22	67. 32. 46·95	26
31. 28. 21·64	40. 18	− 6·20	71·5	207·0	92·2	231·5	66·0	244·5	63·0	238·7	26·80	+14·83	31. 28. 30·27	20. 30. 52·00	27
213. 29. 45·03	40. 37	+ 6·16	61·3	196·4	79·0	218·5	53·5	233·0	51·5	227·3	15·06	− 0·98	213. 29. 50·21	22. 32. 11·94	28
190. 35. 19·84	102. 18	− 4·10	57·7	193·5	77·5	216·8	50·7	229·8	49·0	224·8	12·48	+ 0·38	190. 35. 16·12	179. 37. 37·85	29
10. 35. 8·94	102. 18	+ 4·10	67·5	203·8	88·0	227·0	61·7	241·0	60·2	235·0	23·03	+ 1·92	10. 35. 14·96	179. 37. 36·69	30
58. 56. 30·64	74. 27	− 4·16	59·0	203·5	78·7	227·5	48·3	246·4	47·2	239·5	18·76	+ 1·26	58. 56. 27·74	47. 58. 43·94	31
240. 52. 54·36	75. 29	+ 4·14	60·0	204·5	80·2	228·5	49·6	248·2	49·0	241·2	20·15	− 1·54	240. 52. 56·96	49. 55. 13·16	32
159. 43. 42·04	46. 44	+ 5·51	51·0	196·4	70·8	220·6	38·0	238·5	38·7	231·4	10·68	+ 3·33	159. 43. 50·88	328. 46. 7·08	33
341. 23. 51·99	46. 19	− 5·55	61·5	206·0	81·2	230·5	49·8	249·6	49·7	242·0	21·29	+ 6·75	341. 23. 53·19	330. 26. 9·39	34
10. 35. 8·14	102. 18	+ 4·10	61·5	205·8	80·7	230·0	49·5	248·5	50·0	241·4	20·93	+ 1·46	10. 35. 13·70	179. 37. 29·90	35
190. 35. 18·66	102. 18	− 4·10	58·7	203·5	78·5	227·2	47·0	245·3	47·2	238·5	18·24	− 0·88	190. 35. 13·68	179. 37. 29·88	36
200. 16. 57·50	68. 25	+ 4·31	57·8	188·5	77·3	211·2	51·7	230·0	51·6	222·3	11·30	+ 1·16	200. 17. 2·97	9. 19. 19·17	37
24. 37. 8·01	68. 57	− 4·30	72·3	203·5	92·4	225·8	68·2	243·8	66·8	237·4	26·28	+ 4·64	24. 37. 8·35	13. 39. 24·55	38
42. 44. 1·42	48. 39	− 5·34	73·4	205·0	94·2	228·2	68·8	245·2	68·2	239·3	27·79	+11·94	42. 44. 8·02	31. 46. 24·22	39
224. 15. 55·85	49. 3	+ 5·31	59·3	191·2	79·6	214·2	52·2	230·3	52·6	223·7	12·89	+ 1·15	224. 16. 2·31	33. 18. 18·51	40
190. 35. 20·45	102. 18	− 4·10	57·4	189·3	77·8	212·3	50·8	227·5	50·2	221·8	10·89	+ 0·73	190. 35. 17·08	179. 37. 33·28	41
10. 35. 12·10	102. 18	+ 4·10	69·2	201·0	89·8	224·3	64·2	240·3	63·3	234·0	23·26	+ 1·97	10. 35. 18·17	179. 37. 34·37	42

Co-efficient of Correction for Collimation, Face Right, −3″·89; from August 4, −4″·01.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 13″·62; from August 4, 14″·22.
Zero of Azimuth, 10°. 57′. 43″·80; July 22, 10°. 57′. 41″·62; July 23 to 27, 10°. 57′. 38″·14; August 4, 10°. 57′. 38″·27; August 6 to 9, 10°. 57′. 43″·80.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, −2′. 4″·66.

28. The correction applied in forming Circle Reading for mean of wires observed is + 37″·42.

37. The reading for *k* was set down 260ᵈ·0.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
Aug. 16	JC	1	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·648	5·133	4·972	5·256
	JC	2	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·316	3·842	3·176	3·500
Aug. 18	S	3	☽ 2 L.....	Right	57·6	0·8	4·2	7·6	10·9	14·2	+ 0·04	0. 9. 5·92	50·49	0. 9. 56·41	1·443	1·968	1·379	1·484
	S	4	☽ 2 L.....	Left	3·9	7·3	10·5	13·6	17·2	20·9	+ 0·04	0. 23. 12·27	50·51	0. 24. 2·78	0·804	1·278	1·058	1·336
Aug. 20	JC	5	☽ 2 L.....	Left	47·9	52·1	56·6	0·9	5·3	9·5	— 0·08	21. 27. 58·64	54·28	21. 28. 52·92	7·723	8·017	7·742	8·404
	JC	6	☽ 2 L.....	Right	23·5	27·5	31·9	36·4	40·6	45·1	— 0·08	21. 38. 34·09	54·30	21. 39. 28·39	0·429	1·248	0·845	0·820
	JC	7	α Aquilæ ...	Left	38·7	42·4	46·0	49·9	53·4	56·6	— 0·08	21. 45. 47·75	54·30	21. 46. 42·05	4·484	5·240	5·023	5·184
	JC	8	α Aquilæ ...	Right	23·0	26·4	30·0	33·7	37·2	40·9	— 0·08	21. 49. 31·79	54·31	21. 50. 26·10	6·097	6·354	5·834	6·415
	JC	9	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·238	3·683	3·288	3·527
	JC	10	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·606	5·149	5·064	5·333
Aug. 21	C	11	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·690	5·220	5·080	5·290
	C	12	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·330	3·732	3·294	3·496
	C	13	α Aquilæ ...	Right	43·6	46·9	49·9	53·3	56·7	0·1	— 0·12	20. 22. 51·63	56·07	20. 23. 47·70	6·080	6·389	5·980	6·326
	C	14	α Aquilæ ...	Left	20·2	23·5	26·7	30·2	33·4	36·7	— 0·12	20. 28. 28·33	56·08	20. 29. 24·41	3·561	4·194	3·990	4·099
	C	15	☽ 2 L.....	Right	14·8	19·2	23·4	28·0	32·4	37·0	— 0·12	20. 43. 25·68	56·10	20. 44. 21·78	0·234	1·090	0·720	0·640
	C	16	☽ 2 L.....	Left	37·2	41·7	46·3	50·9	55·4	0·0	— 0·12	20. 54. 48·46	56·12	20. 55. 44·58	0·495	0·850	0·360	0·765
Aug. 22	JC	17	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·680	5·208	5·072	5·274
	JC	18	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·346	3·784	3·262	3·497
	JC	19	α Aquilæ ...	Right	54·6	58·2	1·7	5·3	9·0	12·8	— 0·08	21. 52. 3·52	57·66	21. 53. 1·18	6·193	6·426	5·981	6·514
	JC	20	α Aquilæ ...	Left	57·4	1·4	4·8	8·4	12·1	15·4	— 0·08	21. 56. 6·50	57·67	21. 57. 4·17	5·683	6·417	6·182	6·284
	JC	21	☽ 2 L.....	Left	51·0	55·4	59·8	4·7	9·4	13·8	— 0·08	22. 6. 2·27	57·68	22. 6. 59·95	7·912	8·133	7·831	8·464
	JC	22	☽ 2 L.....	Right	27·7	32·3	36·5	41·4	46·2	50·5	— 0·08	22. 14. 39·02	57·69	22. 15. 36·71	6·136	6·842	6·554	6·627
Aug. 23	L	23	☽ 2 L.....	Right	42·6	47·0	51·5	56·1	1·0	5·9	— 0·27	23. 41. 53·75	59·49	23. 42. 53·24	3·150	3·915	3·567	3·594
	L	24	☽ 2 L.....	Left	57·4	2·2	6·6	11·4	16·0	20·4	— 0·27	23. 53. 8·73	59·50	23. 54. 8·23	2·432	2·727	2·366	3·041
	L	25	ζ Pegasi	Right	4·6	8·0	11·4	15·0	18·4	21·8	— 0·27	0. 4. 12·93	59·52	0. 5. 12·45	2·549	2·894	2·472	3·063
	L	26	ζ Pegasi	Left	54·3	57·8	1·3	5·1	8·4	11·8	— 0·27	0. 11. 2·85	59·52	0. 12. 2·37	6·286	6·962	6·563	6·921
	L	27	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·565	5·034	5·168	5·420
	L	28	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·366	3·762	3·323	3·533
Aug. 24	HC	29	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·335	3·731	3·250	3·419
	HC	30	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·644	5·100	4·942	5·197
	HC	31	ε Pegasi	Left	4·4	7·9	11·4	15·5	18·6	21·7	— 0·03	22. 54. 13·22	61·01	22. 55. 14·23	0·209	0·918	0·527	0·671
	HC	32	ε Pegasi	Right	39·4	42·9	46·0	49·8	53·2	56·7	— 0·03	23. 2. 47·97	61·02	23. 3. 48·99	0·202	0·627	0·001	0·345
Sept. 3	JC	33	☽ 1 L.....	Right	7·3	11·0	14·8	19·1	22·9	26·8	— 0·08	18. 8. 16·90	18·54	18. 8. 35·44	6·582	6·760	6·479	7·093
	JC	34	☽ 1 L.....	Left	20·6	24·5	28·5	32·5	36·4	40·2	— 0·08	18. 15. 30·37	18·55	18. 15. 48·92	1·764	2·566	2·185	2·312
	JC	35	α Aquilæ ...	Left	35·6	39·2	42·7	46·1	49·4	52·6	— 0·08	18. 23. 44·19	18·56	18. 24. 2·75	5·284	5·583	5·682	6·063
	JC	36	α Aquilæ ...	Right	57·4	0·4	3·6	7·1	10·7	14·3	— 0·08	18. 28. 5·50	18·56	18. 28. 24·06	7·513	7·861	7·514	7·693
	JC	37	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·349	3·832	3·160	3·263
	JC	38	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·635	5·068	5·013	5·230
Sept. 4	L	39	☽ 1 L.....	Left	59·5	3·1	7·0	10·7	14·5	18·0	— 0·27	17. 52. 8·53	20·33	17. 52. 28·86	0·163	0·889	0·594	0·757
	L	40	☽ 1 L.....	Right	52·7	56·5	0·1	4·0	7·9	11·6	— 0·27	18. 10. 1·86	20·35	18. 10. 22·21	0·581	1·085	0·515	0·996
	L	41	γ Aquilæ ...	Right	53·1	56·5	59·9	3·4	6·8	10·3	— 0·27	18. 28. 1·40	20·37	18. 28. 21·77	7·213	7·643	7·221	7·432
	L	42	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·674	5·202	5·002	5·272
	L	43	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·317	3·685	3·302	3·563

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, — 0″·16; from September 3, — 0″·37.

16. Cloudy; faint.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
190. 35. 15·51	102. 18	− 4·10	56·2	196·2	76·7	219·8	44·4	236·6	45·3	230·5	13·21	+ 0·22	190. 35. 11·63	179. 37. 26·82	1
10. 35. 5·52	102. 18	+ 4·10	67·3	207·2	88·6	232·0	57·0	249·3	57·6	242·4	25·18	+ 2·39	10. 35. 12·01	179. 37. 27·20	2
3. 0. 59·96	51. 9	− 5·15	69·5	205·5	89·8	229·3	61·3	246·2	60·8	240·1	25·31	+ 8·93	3. 1. 3·74	352. 3. 20·16	3
187. 25. 42·67	50. 55	+ 5·16	56·1	192·5	76·8	215·5	48·2	231·9	46·3	226·1	11·68	+ 2·06	187. 25. 49·89	356. 28. 6·31	4
111. 0. 4·15	71. 34	+ 4·23	54·2	189·0	75·7	213·2	48·3	230·6	48·8	225·5	10·66	+ 1·19	111. 0. 9·57	280. 2. 27·23	5
293. 5. 31·94	69. 59	− 4·27	67·9	203·3	89·8	228·2	62·6	245·2	62·1	239·3	24·80	+ 3·85	293. 5. 31·52	282. 7. 49·18	6
232. 13. 10·14	49. 44	+ 5·26	63·7	199·3	84·4	223·8	56·8	241·2	57·0	234·8	20·13	− 5·01	232. 13. 10·39	41. 15. 28·05	7
53. 18. 55·66	50. 7	− 5·23	59·0	195·0	80·2	219·8	52·0	237·4	52·2	230·8	15·80	+ 1·33	53. 18. 51·76	42. 21. 9·42	8
10. 35. 6·41	102. 18	+ 4·10	62·0	199·7	82·8	224·0	54·2	242·7	53·3	237·6	19·54	+ 1·16	10. 35. 11·67	179. 37. 29·33	9
190. 35. 16·87	102. 18	− 4·10	57·9	194·8	78·2	219·7	48·7	237·8	48·2	233·3	14·83	− 0·13	190. 35. 12·64	179. 37. 30·30	10
190. 35. 18·10	102. 18	− 4·10	57·4	191·0	78·4	214·2	51·6	229·0	51·8	222·8	12·03	+ 0·48	190. 35. 14·48	179. 37. 37·61	11
10. 35. 7·55	102. 18	+ 4·10	68·8	202·1	90·5	227·0	65·0	241·4	64·8	235·5	24·39	+ 2·22	10. 35. 13·87	179. 37. 37·00	12
25. 8. 56·38	43. 42	− 5·80	71·0	205·8	92·9	230·4	67·4	242·6	67·0	237·0	26·64	+12·99	25. 9. 3·57	14. 11. 26·70	13
207. 7. 31·16	43. 55	+ 5·78	57·3	192·5	78·5	216·8	52·0	228·6	52·0	222·6	12·54	+ 1·75	207. 7. 38·69	16. 10. 1·82	14
269. 55. 25·67	83. 44	− 4·03	67·0	202·4	89·4	227·6	62·9	239·2	62·8	233·4	23·09	+ 0·98	269. 55. 22·62	258. 57. 45·75	15
92. 0. 23·60	82. 3	+ 4·05	59·5	194·8	79·9	218·0	53·4	230·1	53·0	224·2	14·11	+ 0·02	92. 0. 27·67	261. 2. 50·80	16
190. 35. 17·68	102. 18	− 4·10	59·7	192·0	80·8	215·2	55·8	229·6	55·0	223·7	13·98	+ 0·05	190. 35. 13·63	179. 37. 29·96	17
10. 35. 7·91	102. 18	+ 4·10	68·3	200·8	90·8	225·2	65·7	239·6	65·3	233·8	23·69	+ 2·06	10. 35. 14·07	179. 37. 30·40	18
54. 3. 59·61	50. 23	− 5·20	65·6	198·0	86·7	221·3	61·3	235·2	61·0	229·3	19·80	+ 4·62	54. 3. 59·03	43. 6. 15·36	19
235. 13. 54·37	50. 49	+ 5·17	64·7	197·0	86·0	221·2	59·6	234·3	59·3	228·7	18·85	− 3·77	235. 13. 55·77	44. 16. 12·10	20
92. 30. 8·51	77. 45	+ 4·10	62·0	194·7	82·8	218·4	56·6	231·5	56·6	225·8	16·05	− 0·40	92. 30. 12·21	261. 32. 28·54	21
274. 4. 9·59	76. 28	− 4·13	67·0	200·0	87·9	223·3	61·4	237·0	62·0	230·8	21·18	+ 1·68	274. 4. 7·14	263. 6. 23·47	22
277. 32. 15·77	70. 50	− 4·25	66·6	199·3	88·0	223·6	62·4	240·3	62·0	231·5	21·71	+ 2·61	277. 32. 14·13	266. 34. 34·16	23
99. 36. 40·77	69. 9	+ 4·29	58·5	191·2	79·6	215·7	53·6	229·8	53·0	223·3	13·09	+ 0·43	99. 36. 45·49	268. 39. 5·52	24
43. 6. 44·16	45. 15	− 5·65	62·6	196·3	84·0	220·2	57·7	234·0	57·0	228·6	17·55	+ 3·30	43. 6. 41·81	32. 9. 1·84	25
225. 19. 15·04	45. 50	+ 5·59	64·0	197·6	85·6	222·3	57·4	236·3	57·2	230·7	18·89	− 4·53	225. 19. 16·10	34. 21. 36·13	26
190. 35. 17·14	102. 18	− 4·10	57·1	191·3	78·5	215·3	49·7	229·2	49·7	223·4	11·78	+ 0·53	190. 35. 13·57	179. 37. 33·60	27
10. 35. 8·82	102. 18	+ 4·10	66·3	200·2	88·2	224·8	60·3	239·0	60·8	232·8	21·55	+ 1·60	10. 35. 14·52	179. 37. 34·55	28
10. 35. 6·35	102. 18	+ 4·10	68·5	199·5	91·5	224·8	64·0	240·0	63·8	234·7	23·35	+ 1·99	10. 35. 12·44	179. 37. 30·10	29
190. 35. 14·32	102. 18	− 4·10	61·2	191·8	81·5	215·7	55·5	229·3	54·2	224·0	14·15	+ 0·02	190. 35. 10·24	179. 37. 27·90	30
218. 30. 22·20	45. 5	+ 5·66	66·7	197·7	87·8	221·8	61·0	233·5	60·0	227·5	19·50	− 5·26	218. 30. 22·60	27. 32. 40·26	31
41. 20. 11·30	45. 44	− 5·60	65·5	197·0	86·4	220·5	58·5	231·8	61·5	226·0	18·40	+ 4·08	41. 20. 9·78	30. 22. 27·44	32
58. 44. 16·21	76. 24	− 4·31	65·2	193·4	87·8	217·6	63·7	228·8	63·3	223·8	17·93	+ 0·96	58. 44. 12·86	47. 46. 28·93	33
240. 16. 24·07	77. 13	+ 4·29	66·2	194·7	90·0	219·8	65·3	230·5	65·2	225·3	19·63	− 1·28	240. 16. 27·08	49. 18. 43·15	34
162. 48. 35·18	46. 0	+ 5·82	56·3	184·0	78·0	208·4	53·2	218·4	52·0	212·7	7·88	+ 5·91	162. 48. 46·91	331. 51. 2·98	35
344. 14. 51·19	45. 41	− 5·86	72·0	200·6	95·8	226·0	71·6	236·2	71·0	231·1	25·54	+11·26	344. 14. 56·59	333. 17. 12·66	36
10. 35. 4·97	102. 18	+ 4·29	74·2	202·0	96·8	227·0	72·2	237·2	71·6	231·8	26·60	+ 2·75	10. 35. 12·01	179. 37. 28·08	37
190. 35. 14·50	102. 18	− 4·29	61·2	188·4	82·2	212·8	57·3	221·8	56·5	216·7	12·11	+ 0·41	190. 35. 10·62	179. 37. 26·69	38
222. 35. 22·88	72. 22	+ 4·40	60·6	194·3	83·8	220·2	55·8	237·7	55·2	230·4	17·25	− 1·03	222. 35. 26·25	31. 37. 46·62	39
46. 40. 30·28	73. 52	− 4·36	60·6	195·0	83·5	220·7	54·5	237·2	55·2	231·2	17·24	+ 0·94	46. 40. 26·86	35. 42. 47·23	40
344. 59. 41·00	43. 41	− 6·07	67·2	202·4	90·6	228·6	61·6	244·2	61·8	239·2	24·45	+10·94	344. 59. 45·87	334. 2. 6·24	41
190. 35. 16·48	102. 18	− 4·29	58·6	194·0	81·2	219·4	52·5	234·6	52·4	229·2	15·24	− 0·27	190. 35. 11·92	179. 37. 32·29	42
10. 35. 7·39	102. 18	+ 4·29	65·2	200·0	87·7	225·5	59·6	240·8	60·2	235·3	21·79	+ 1·70	10. 35. 13·38	179. 37. 33·75	43

Co-efficient of Correction for Collimation, Face Right, − 4″·01 ; from September 3, −4″·19.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 14″·22 ; from September 3, 14″·00.
Zero of Azimuth, 10°. 57′. 44″·81 ; August 18. 10°. 57′. 43″·58 ; August 20, 10°. 57′. 42″·34 ; August 21, 10°. 57′. 36″·87 ; August 22, 10°. 57′. 43″·67 ; August 23, 10°. 57′. 39″·97 ; August 24, 10°. 57′. 42″·34 ; September 3, 10°. 57′. 43″·93 ; September 4 and 5, 10°. 57′. 39″·63.
The Collimator is generally bisected by wire *x* ; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

5. The reading for *i* was set down 38^{d}·3.
23. The reading for *k* was set down 280^{d}·3.
8. The level *e f* was not read ; the corresponding numbers inserted above have been supplied conjecturally.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
												(Hardy.)						
Sept. 14	C	1	α Aquilæ ...	Right	59·9	3·0	6·3	9·8	13·0	16·2	— 0·12	19. 33. 7·91	38·36	19. 33. 46·27	4·269	4·686	4·122	4·330
	C	2	α Aquilæ ...	Left	32·7	35·9	39·0	42·4	45·7	48·8	— 0·12	19. 37. 40·63	38·37	19. 38. 19·00	2·190	2·664	2·480	2·630
	C	3	☽ 2 L.....	Left	34·6	38·3	42·2	46·3	50·2	54·1	— 0·12	20. 41. 44·16	38·43	20. 42. 22·59	2·074	2·372	2·050	2·350
	C	4	☽ 2 L.....	Right	31·7	35·2	39·1	43·0	47·0	51·0	— 0·12	20. 49. 41·05	38·44	20. 50. 19·49	2·664	3·246	2·870	2·820
Sept. 15	E	5	☽ 2 L.....	Left	4·9	9·2	13·2	17·4	21·7	25·8	+ 0·16	20. 56. 15·53	39·98	20. 56. 55·51	3·572	3·935	3·565	4·108
	E	6	☽ 2 L.....	Right	18·3	22·0	26·2	30·7	34·7	38·7	+ 0·16	21. 5. 28·59	39·99	21. 6. 8·58	4·582	5·216	4·767	4·836
	E	7	α Aquilæ ...	Right	10·6	14·1	17·8	21·1	24·8	28·0	+ 0·16	21. 11. 19·56	40·00	21. 11. 59·56	0·614	1·000	0·404	0·699
	E	8	α Aquilæ ...	Left	29·3	33·0	36·6	40·0	43·6	46·9	+ 0·16	21. 16. 38·39	40·00	21. 17. 18·39	3·637	4·316	4·092	4·187
	E	9	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·599	5·017	5·187	5·362
	E	10	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·277	3·684	3·167	3·325
Sept. 16	D	11	α Aquilæ ...	Right	43·2	46·4	49·8	53·2	56·4	59·7	..	19. 50. 51·43	41·73	19. 51. 33·18	7·235	7·590	7·153	7·467
	D	12	α Aquilæ ...	Left	18·0	21·3	24·7	27·9	31·0	34·2	..	19. 56. 26·18	41·74	19. 57 7·92	1·042	1·591	1·380	1·568
	D	13	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·646	5·130	5·114	5·365
	D	14	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·323	3·672	3·287	3·572
	D	15	☽ 2 L.....	Left	35·3	39·8	44·0	48·5	52·9	57·0	..	20. 32. 46·25	41·78	20. 33. 28·03	7·401	7·642	7·343	7·985
	D	16	☽ 2 L.....	Right	46·8	50·4	54·7	59·2	3·5	8·1	..	20. 40. 57·12	41·78	20 41. 38·90	4·120	4·878	4·512	4·334
Sept. 17	JC	17	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·711	5·136	5·124	5·307
	JC	18	☽ 2 L.....	Left	56·2	59·8	3·3	7·0	10·7	14·1	— 0·08	1. 27. 5·10	43·31	1. 27. 48·41	4·386	4·704	4·651	5·024
	JC	19	☽ 2 L.....	Right	42·1	45·3	48·8	52·8	56·1	0·0	— 0·08	1. 34. 50·77	43·32	1. 35. 34·09	6·529	6·934	6·593	6·714
	JC	20	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·373	3·816	3·242	3·349
Sept. 18	L	21	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·836	5·311	5·183	5·373
	L	22	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·441	3·773	3·415	3·663
	L	23	☽ 2 L.....	Left	59·0	3·8	7·8	12·3	16·8	21·1	— 0·27	20. 59. 9·86	44·60	20. 59. 54·46	2·902	3·176	2·753	3·295
	L	24	☽ 2 L.....	Right	55·4	59·7	4·2	8·7	13·3	17·8	— 0·27	21. 8. 6·25	44·61	21. 8. 50·86	7·253	7·993	7·766	7·835
	L	25	α Aquilæ ...	Right	35·2	38·8	42·1	46·0	49·4	53·0	— 0·27	21. 28. 43·81	44·64	21. 29. 28·45	2·226	2·565	2·004	2·453
	L	26	α Aquilæ ...	Left	50·5	54·3	57·7	1·2	4·8	8·2	— 0·27	21. 33. 59·18	44·64	21. 34. 43·82	4·327	5·066	4·809	4·832
Sept. 19	E	27	☽ 2 L.....	Left	25·4	30·1	34·8	39·3	43·6	48·4	+ 0·16	0. 22. 37·09	46·63	0. 23. 23·72	7·460	7·675	7·440	8·055
	E	28	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·324	3·622	3·250	3·540
	E	29	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·637	5·108	5·125	5·284
	E	30	☽ 2 L.....	Right	9·1	13·7	18·1	22·9	27·4	31·9	+ 0·16	0. 55. 20·68	46·67	0. 56. 7·35	2·970	3·775	3·337	3·417
Sept. 20	D	31	ζ Pegasi	Left	12·8	15·9	19·4	22·7	25·9	28·9	..	22. 48. 20·93	48·40	22. 49. 9·33	1·616	2·109	2·061	2·322
	D	32	ζ Pegasi	Right	5·3	8·3	11·7	15·0	18·2	21·6	..	22. 54. 13·35	48·41	22. 55. 1·76	3·129	3·448	3·058	3·312
	D	33	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·292	3·718	3·242	3·508
	D	34	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·612	5·091	5·095	5·295
	D	35	☽ 2 L.....	Right	36·1	40·7	45·1	49·8	54·3	59·1	..	23. 21. 47·52	48·45	23. 22. 35·97	0·351	1·208	0·798	0·772
	D	36	☽ 2 L.....	Left	47·1	51·9	56·4	1·3	5·7	10·3	..	23. 30. 58·78	48·46	23. 31. 47·24	6·416	6·635	6·321	6·974
												(Graham 1.)						
Sept. 22	L	37	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·356	3·723	3·427	3·598
	L	38	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·722	5·197	5·059	5·263
	L	39	ζPegasi(E&E)	Right	44·7	1·8	18·6	36·0	53·6	11·0	..	0. 4. 27·62	35·16	0. 5. 2·78	5·596	5·898	5·448	5·877
	L	40	ζPegasi(E&E)	Left	8·6	26·2	43·6	1·0	18·5	36·3	..	0. 12. 52·37	35·16	0. 13. 27·53	1·995	2·684	2·402	2·563
	L	41	☽ 2 L (E&E)	Right	44·0	6·1	27·7	50·5	11·9	34·6	..	0. 56. 39·13	35·15	0. 57. 14·28	3·432	4·302	3·943	4·044
	L	42	☽ 2 L (E&E)	Left	55·9	18·0	40·7	2·6	24·9	47·3	..	1. 9. 51·57	35·15	1. 10. 26·72	2·485	2·906	2·464	2·995

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^{r}\cdot8$ of *a*, to $7^{r}\cdot7$ of *b*, to $7^{r}\cdot9$ of *c*, and to $8^{r}\cdot0$ of *d*.

Correction for Runs of Microscopes for 100″, — 0″·37.

1 Cloudy.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
7. 7. 45·79	42. 59	− 6·15	65·8	207·4	89·4	234·5	59·4	250·7	59·0	244·3	26·31	+13·21	7. 7. 52·85	356. 10. 8·18	1
188. 46. 34·86	42. 57	+ 6·15	52·5	194·7	75·0	220·6	43·5	235·6	44·4	229·2	11·94	+ 2·21	188. 46. 43·22	357. 48. 58·55	2
132. 46. 24·23	68. 47	+ 4·50	54·0	196·7	77·1	223·0	45·2	235·4	45·6	229·4	13·30	+ 0·27	132. 46. 29·00	301. 48. 44·33	3
314. 31. 50·51	67. 45	− 4·53	67·9	209·8	92·8	238·4	60·5	250·6	61·4	244·5	28·24	+ 5·82	314. 31. 51·80	303. 34. 7·13	4
122. 12. 24·50	70. 18	+ 4·45	48·5	190·3	72·0	218·5	40·7	233·5	40·5	227·2	8·90	+ 1·83	122. 12. 30·78	291. 14. 46·11	5
304. 8. 4·76	69. 0	− 4·49	67·0	209·6	91·5	238·5	60·5	253·0	59·6	246·0	28·21	+ 5·46	304. 8. 5·73	293. 10. 21·06	6
41. 30. 25·94	46. 33	− 5·77	59·2	202·0	83·0	229·7	51·5	244·0	51·2	237·5	19·76	+ 5·45	41. 30. 25·62	30. 32. 40·95	7
223. 12. 34·53	46. 59	+ 5·73	57·5	200·2	81·3	228·0	49·7	243·6	49·6	236·5	18·30	− 4·01	223. 12. 36·25	32. 14. 51·58	8
190. 35. 16·54	102. 18	− 4·29	52·5	195·8	76·3	223·0	43·7	236·8	43·5	230·5	12·76	+ 0·27	190. 35. 12·52	179. 37. 27·85	9
10. 35. 3·50	102. 18	+ 4·29	61·5	204·5	85·7	233·0	53·5	247·0	54·0	240·0	22·40	+ 1·83	10. 35. 9·62	179. 37. 24·95	10
13. 34. 40·37	42. 58	− 6·15	59·1	207·2	83·2	235·3	50·7	254·0	51·0	246·7	23·40	+10·10	13. 34. 44·32	2. 37. 4·90	11
195. 35. 53·12	43. 1	+ 6·14	51·7	199·8	74·8	227·4	41·3	245·0	42·0	238·4	15·05	− 1·13	195. 35. 58·13	4. 38. 18·71	12
190. 35. 17·43	102. 18	− 4·29	51·3	199·5	74·2	226·6	40·2	243·5	41·0	237·2	14·19	− 0·04	190. 35. 13·10	179. 37. 33·68	13
10. 35. 7·27	102. 18	+ 4·29	58·0	206·2	81·5	234·0	48·0	251·1	48·2	244·0	21·38	+ 1·61	10. 35. 13·17	179. 37. 33·75	14
104. 24. 49·09	78. 23	+ 4·28	48·2	196·6	71·3	224·0	36·5	240·0	37·8	233·5	10·99	+ 0·62	104. 24. 53·99	273. 27. 14·57	15
285. 57. 51·82	77. 8	− 4·30	61·5	209·7	85·4	238·2	50·2	254·0	50·9	246·2	24·51	+ 2·40	285. 57. 49·92	275. 0. 10·50	16
190. 35. 17·66	102. 18	− 4·29	47·7	200·2	71·0	229·8	35·7	247·8	38·2	242·3	14·09	− 0·02	190. 35. 13·35	179. 37. 33·93	17
158. 42. 58·58	43. 59	+ 6·03	44·2	196·8	67·4	225·6	31·6	242·5	33·4	236·3	9·73	+ 4·42	158. 43. 9·03	327. 45. 29·61	18
341. 14. 14·91	43. 23	− 6·10	59·0	211·4	83·7	241·2	48·2	259·2	49·5	251·8	25·50	+12·17	341. 14. 20·98	330. 16. 41·56	19
10. 35. 6·63	102. 18	+ 4·29	58·8	211·0	82·8	240·6	48·2	258·3	49·3	251·2	25·03	+ 2·40	10. 35. 13·32	179. 37. 33·90	20
90. 35. 21·74	102. 18	− 4·29	52·2	196·3	76·2	224·2	44·7	238·4	46·2	234·0	14·03	+ 0·39	190. 35. 17·84	179. 37. 38·42	21
0. 35. 11·44	102. 18	+ 4·29	61·7	205·8	86·2	234·2	54·8	249·0	56·0	243·2	23·86	+ 1·75	10. 35. 17·48	179. 37. 38·06	22
84. 1. 55·43	85. 36	+ 4·20	58·2	201·8	81·7	230·5	49·7	242·8	50·2	237·4	19·04	− 0·24	84. 1. 59·39	253. 4. 19·97	23
265. 39. 53·69	84. 20	− 4·21	56·2	200·2	80·0	228·3	48·2	241·6	48·8	235·6	17·36	+ 0·15	265. 39. 49·63	254. 42. 10·21	24
47. 1. 28·08	48. 3	− 5·63	59·4	203·6	84·0	232·2	51·6	245·3	52·6	239·4	21·01	+ 4·65	47. 1. 27·10	36. 3. 47·68	25
228. 38. 1·22	48. 33	+ 5·59	56·0	200·2	79·4	228·3	47·6	241·0	47·3	235·2	16·88	− 0·92	228. 38. 5·89	37. 40. 26·47	26
109. 9. 51·56	62. 19	+ 4·73	56·0	200·2	78·5	228·0	46·7	244·0	47·0	237·5	17·24	− 0·74	109. 9. 55·55	278. 12. 16·13	27
10. 35. 6·14	102. 18	+ 4·29	60·0	204·3	83·8	233·0	51·7	249·3	51·5	242·0	21·95	+ 1·33	10. 35. 11·76	179. 37. 32·34	28
190. 35. 16·48	102. 18	− 4·29	51·5	196·3	75·0	224·5	42·0	239·8	43·5	233·4	13·25	+ 0·56	190. 35. 12·75	179. 37. 33·33	29
295. 52. 8·56	57. 28	− 4·97	59·5	203·5	83·5	233·0	50·7	248·5	50·2	241·0	21·24	+ 3·45	295. 52. 7·04	284. 54. 27·62	30
196. 16. 17·13	41. 25	+ 6·34	53·5	199·6	77·0	227·5	43·5	244·4	44·0	238·0	15·94	− 0·11	196. 16. 23·36	5. 18. 43·94	31
18. 27. 3·29	41. 31	− 6·32	55·2	201·7	79·2	229·5	45·8	247·0	46·1	240·3	18·10	+ 2·55	18. 26. 59·52	7. 29. 20·10	32
10. 35. 6·38	102. 18	+ 4·29	58·8	205·6	82·8	233·2	48·9	250·0	49·1	243·2	21·45	+ 1·22	10. 35. 11·89	179. 37. 32·47	33
190. 35. 15·90	102. 18	− 4·29	53·0	199·6	76·2	227·1	41·7	243·3	42·7	237·3	15·11	+ 0·16	190. 35. 11·77	179. 37. 32·35	34
265. 40. 29·85	79. 30	− 4·26	61·3	207·9	85·8	236·2	50·5	252·2	50·5	245·4	23·73	+ 1·46	265. 40. 27·05	254. 42. 47·63	35
87. 19. 10·78	78. 11	+ 4·28	50·7	197·2	73·7	225·0	38·7	240·5	39·1	234·0	12·36	+ 0·73	87. 19. 15·79	256. 21. 36·37	36
10. 35. 10·93	102. 18	+ 2·19	56·2	204·5	81·0	233·5	46·7	249·8	47·8	243·2	20·34	+ 0·98	10. 35. 14·10	179. 37. 34·68	37
190. 35. 16·04	102. 18	− 2·19	52·7	201·3	76·6	229·4	42·0	244·2	43·0	239·0	16·03	− 0·04	190. 35. 13·81	179. 37. 34·39	38
43. 3. 37·26	45. 14	− 3·00	53·6	201·8	78·4	230·8	42·6	245·7	43·2	240·5	17·08	+ 1·23	43. 3. 35·49	32. 5. 56·07	39
225. 46. 31·81	45. 57	+ 2·98	57·4	206·0	81·7	234·9	46·4	251·2	46·8	245·0	21·18	− 5·16	225. 46. 29·63	34. 48. 50·21	40
260. 57. 29·70	84. 24	− 2·15	57·7	207·3	83·5	238·2	45·4	257·2	48·2	249·3	23·35	+ 0·74	260. 57. 28·29	249. 59. 48·87	41
83. 21. 43·29	82. 34	+ 2·16	48·0	198·3	72·7	227·8	34·2	245·4	37·6	238·6	12·83	+ 0·39	83. 21. 45·84	252. 24. 6·42	42

Co-efficient of Correction for Collimation, Face Right, −4″·19; September 22, −2″·14.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 14″·00; from September 18, 15″·84.
Zero of Azimuth, 10°. 57′. 44″·67; September 16 to 23, 10°. 57′. 39″·42.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

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Observations of Azimuth, with the Altazimuth,

Day.	Observer.	No. for Reference.	Name of Object.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
Oct. 8	S	1	α Aquilæ ...	Left	6·2	9·7	12·8	16·4	19·8	23·1	+ 0·04	20. 48. 14·71	19·80	20. 48. 34·51	7·572	8·099	8·066	8·295
	S	2	α Aquilæ ...	Right	36·8	40·1	43·5	47·0	50·6	54·0	+ 0·04	20. 56. 45·37	19·81	20. 57. 5·18	3·234	3·453	3·002	3·441
	S	3	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·528	3·941	3·419	3·588
	S	4	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·768	5·211	5·281	5·506
Oct. 10	C	5	α Aquilæ ...	Left	36·5	39·8	43·3	46·8	50·3	53·4	− 0·12	18. 25. 44·90	22·70	18. 26. 7·60	7·072	7·389	7·550	7·970
	C	6	α Aquilæ ...	Right	44·8	48·1	51·6	54·9	58·4	1·7	− 0·12	18. 32. 53·13	22·71	18. 33. 15·84	3·169	3·650	3·179	3·270
	C	7	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·462	3·929	3·358	3·520
	C	8	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·820	5·296	5·181	5·400
	C	9	☽ 1 L.....	Left	36·2	40·2	44·4	48·4	52·5	56·4	− 0·12	18. 53. 46·23	22·73	18. 54. 8·96	7·694	7·872	8·034	8·604
	C	10	☽ 1 L..	Right	55·4	59·2	3·3	7·6	11·5	15·6	− 0·12	19. 3. 5·31	22·74	19. 3. 28·05	6·903	7·429	7·087	7·150
Oct. 12	P	11	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·699	5·135	5·156	5·454
	P	12	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·412	3·802	3·391	3·653
	P	13	☽ 1 L.....	Left	35·0	39·3	43·3	48·1	52·1	56·1	+ 0·01	19. 33. 45·66	25·68	19. 34. 11·34	6·490	6·723	6·463	7·052
	P	14	☽ 1 L.....	Right	42·3	45·7	49·5	52·6	56·3	0·0	+ 0·01	22. 44. 51·08	25·87	22. 45. 16·95	0·852	1·516	1·051	1·020
Oct. 13	E	15	☽ 2 L.....	Right	49·4	53·4	57·5	2·1	6·3	10·6	+ 0·16	6. 36. 0·04	27·64	6. 36. 27·68	5·536	5·770	5·396	6·002
	E	16	☽ 2 L.	Left	0·4	5·1	9·2	13·8	17·9	22·0	+ 0·16	6. 47. 11·56	27·65	6. 47. 39·21	1·469	2·292	1·905	1·894
	E	17	α Orionis ...	Right	44·6	47·7	51·0	54·6	58·0	1·0	+ 0·16	6. 54. 52·98	27·66	6. 55. 20·64	5·376	5·574	5·308	5·802
	E	18	α Orionis ...	Left	0·6	4·0	7·4	10·9	14·3	..	+ 0·16	7. 3. 7·60	27·67	7. 3. 35·27	2·796	3·398	3·156	3·367
	E	19	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·668	5·085	5·222	5·461
	E	20	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·459	3·744	3·376	3·662
Oct. 14	C	21	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·684	5·147	5·221	5·444
	C	22	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·440	3·780	3·451	3·714
	C	23	☽ 2 L.....	Left	50·2	54·2	57·8	1·6	5·4	9·0	− 0·12	0. 17. 59·58	28·57	0. 18. 28·15	2·800	3·147	3·040	3·329
	C	24	☽ 2 L.....	Right	24·4	28·0	32·0	35·6	39·2	43·3	− 0·12	0. 37. 33·63	28·58	0. 38. 2·21	1·150	1·770	1·320	1·282
Oct. 16	L	25	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·719	5·120	5·210	5·528
	L	26	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·461	3·812	3·434	3·663
	L	27	☽ 2 L.....	Right	58·7	3·0	7·0	11·4	15·6	19·8	− 0·27	7. 48. 8·98	31·62	7. 48. 40·60	1·413	1·760	1·213	1·733
	L	28	☽ 2 L.....	Left	5·1	9·4	14·0	18·4	22·7	27·2	− 0·27	7. 57. 15·86	31·63	7. 57. 47·49	3·512	4·301	4·024	4·116
	L	29	Regulus	Right	20·6	24·1	27·6	31·4	35·0	38·9	− 0·27	8. 9. 29·33	31·64	8. 10. 0·97	1·925	2·544	2·141	2·139
	L	30	Regulus	Left	19·0	22·7	26·3	29·8	33·8	37·1	− 0·27	8. 14. 27·85	31·65	8. 14. 59·50	1·674	2·034	1·667	1·938
Oct. 17	E	31	☽ 2 L.....	Right	54·9	59·3	4·0	8·7	13·2	18·0	+ 0·16	23. 43. 6·51	32·44	23. 43. 38·95	5·018	5·720	5·454	5·536
	E	32	☽ 2 L.....	Left	33·0	37·7	42·4	47·0	51·8	56·3	+ 0·16	23. 51. 44·86	32·44	23. 52. 17·30	3·253	3·583	3·105	3·743
	E	33	ζ Pegasi	Right	24·7	28·1	31·4	35·1	38·4	42·2	+ 0·16	0. 9. 33·48	32·46	0. 10. 5·94	3·017	3·285	2·817	3·218
	E	34	ζ Pegasi	Left	37·8	41·4	44·8	48·4	52·0	55·4	+ 0·16	0. 14. 46·79	32·46	0. 15. 19·25	2·970	3·615	3·417	3·547
	E	35	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·588	5·013	5·102	5·392
	E	36	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·391	3·702	3·335	3·549
Oct. 18	C	37	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·302	3·702	3·276	3·439
	C	38	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·690	5·146	4·992	5·270
	C	39	ζ Pegasi	Left	41·0	44·6	48·1	51·6	55·1	58·6	− 0·12	0. 8. 49·71	33·75	0. 9. 23·46	4·700	5·400	5·226	5·328
	C	40	ζ Pegasi	Right	53·1	56·5	59·9	3·8	7·1	10·9	− 0·12	0. 14. 1·76	33·75	0. 14. 35·51	5·060	5·324	4·892	5·320
	C	41	☽ 2 L.....	Left	9·3	14·1	18·7	23·5	28·1	32·6	− 0·12	0. 18. 20·93	33·76	0. 18. 54·69	6·719	6·953	6·570	7·108
	C	42	☽ 2 L.....	Right	34·4	38·9	43·2	48·2	53·0	57·7	− 0·12	0. 34. 45·78	33·77	0. 35. 19·55	1·670	2·441	2·067	2·034

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, −0″·11.

13. Cloudy.

18, 23, 24. Cloudy; faint.

19, 20. The collimator-image very faint.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
213. 45. 5·69	44. 55	+ 5·44	47·5	210·4	69·5	239·2	30·5	260·1	32·7	252·8	17·84	− 3·83	213. 45. 7·30	22. 47. 26·32	1
36. 37. 5·33	45. 28	− 5·39	46·7	209·3	68·8	238·2	29·2	258·3	31·5	250·8	16·60	+ 2·54	36. 37. 2·48	25. 39. 21·50	2
10. 35. 13·60	102. 18	+ 3·93	51·1	213·6	73·7	242·6	35·1	262·8	37·7	255·4	21·50	+ 1·65	10. 35. 19·18	179. 37. 38·20	3
190. 35. 22·80	102. 18	− 3·93	45·1	207·2	67·1	235·6	30·1	255·8	31·1	248·1	15·01	− 0·22	190. 35. 18·65	179. 37. 37·67	4
163. 29. 46·05	45. 51	+ 5·35	38·5	199·5	60·5	227·8	24·5	249·0	25·9	241·5	8·40	+ 5·46	163. 29. 56·86	332. 32. 19·51	5
345. 52. 6·72	45. 21	− 5·40	52·9	213·5	75·4	242·7	40·2	264·1	40·9	257·2	23·36	+ 9·23	345. 52. 10·55	334. 54. 33·20	6
10. 35. 11·63	102. 18	+ 3·93	52·4	213·6	75·4	242·6	39·6	264·1	40·9	257·0	23·20	+ 2·00	10. 35. 17·56	179. 37. 40·21	7
190. 35. 22·18	102. 18	− 3·93	44·6	205·8	66·5	234·0	30·0	255·0	31·0	247·6	14·31	− 0·06	190. 35. 18·19	179. 37. 40·84	8
129. 15. 7·25	78. 25	+ 3·92	42·0	203·0	64·5	231·7	27·4	252·5	28·2	244·6	11·74	+ 0·47	129. 15. 11·64	298. 17. 34·29	9
311. 9. 32·74	77. 10	− 3·94	54·8	215·0	77·4	244·4	39·2	264·1	40·4	257·0	24·04	+ 2·29	311. 9. 31·09	300. 11. 53·74	10
190. 35. 19·73	102. 18	− 3·93	46·0	204·2	68·1	232·7	35·7	250·3	37·3	244·1	14·80	− 0·17	190. 35. 15·63	179. 37. 38·28	11
10. 35. 11·48	102. 18	+ 3·93	51·6	208·9	73·5	236·7	40·3	255·1	42·0	247·2	19·41	+ 1·18	10. 35. 16·59	179. 37. 39·24	12
111. 44. 15·07	80. 40	+ 3·89	48·0	205·4	69·2	233·8	37·8	249·7	38·6	243·5	15·75	− 0·28	111. 44. 18·68	280. 46. 41·33	13
334. 35. 42·45	55. 58	− 4·64	54·0	211·9	76·2	240·3	40·8	261·3	42·2	254·3	22·63	+ 5·81	334. 35. 43·62	328. 38. 6·27	14
90. 28. 36·69	73. 11	− 4·01	46·0	208·7	68·8	239·0	30·0	260·2	32·5	252·2	17·18	+ 0·95	90. 28. 33·63	79. 30. 56·28	15
272. 41. 12·22	74. 49	+ 3·98	48·7	210·5	71·3	240·4	31·8	261·5	34·0	253·8	19·00	− 1·35	272. 41. 14·85	81. 43. 37·50	16
34. 23. 30·54	46. 13	− 5·32	45·0	206·8	67·0	236·5	28·7	257·6	30·4	250·0	15·25	+ 1·18	34. 23. 26·40	23. 25. 49·05	17
217. 6. 28·37	46. 45	+ 5·27	50·0	211·6	73·0	242·0	33·2	262·0	34·5	254·3	20·08	− 5·70	217. 6. 27·94	26. 8. 50·59	18
190. 35. 19·64	102. 18	− 3·93	47·0	208·5	70·0	239·0	29·8	257·0	32·5	251·5	16·91	− 0·63	190. 35. 15·08	179. 37. 37·73	19
10. 35. 11·30	102. 18	+ 3·93	47·0	209·3	70·0	238·8	31·5	258·4	33·8	251·0	17·48	+ 0·75	10. 35. 15·98	179. 37. 38·63	20
190. 35. 20·22	102. 18	− 3·93	50·6	199·7	72·0	226·6	40·6	244·0	41·8	237·9	14·15	− 0·03	190. 35. 16·26	179. 37. 38·91	21
10. 35. 12·68	102. 18	+ 3·93	55·6	204·6	77·0	231·8	45·9	248·9	46·6	242·6	19·13	+ 1·11	10. 35. 17·72	179. 37. 40·37	22
144. 56. 57·51	49. 54	+ 5·02	51·5	201·9	73·8	228·6	41·5	246·0	42·6	239·8	15·71	− 1·42	144. 57. 1·11	313. 59. 23·76	23
330. 30. 52·79	47. 50	− 5·18	57·5	207·8	79·0	233·9	46·4	251·0	47·4	244·6	20·95	+ 6·28	330. 30. 53·89	319. 33. 16·54	24
190. 35. 21·05	102. 18	− 3·93	53·2	202·2	76·0	230·5	41·7	248·2	43·4	242·4	17·20	− 0·69	190. 35. 16·43	179. 37. 36·11	25
10. 35. 12·57	102. 18	+ 3·93	52·2	200·8	75·5	229·0	41·8	246·2	43·5	240·4	16·18	+ 0·47	10. 35. 16·97	179. 37. 36·65	26
74. 40. 58·44	50. 45	− 4·96	49·6	200·0	73·6	228·6	39·5	246·2	39·7	240·5	14·71	+ 0·56	74. 40. 54·04	63. 43. 13·72	27
256. 52. 32·28	52. 0	+ 4·87	56·0	206·1	79·6	234·8	44·6	253·0	46·2	247·2	20·94	− 5·40	256. 52. 31·75	65. 54. 51·43	28
330. 46. 23·58	44. 53	− 5·44	55·3	205·2	78·6	233·7	43·2	252·0	44·2	245·4	19·71	+ 5·73	330. 46. 23·87	319. 48. 43·55	29
152. 21. 10·02	44. 23	+ 5·49	55·2	205·2	78·5	234·0	42·7	251·4	43·5	244·8	19·41	− 5·51	152. 21. 10·00	321. 23. 29·68	30
272. 58. 27·41	73. 47	− 4·00	56·0	203·5	79·1	232·2	45·4	251·8	45·8	244·6	19·80	+ 1·68	272. 58. 25·09	262. 0. 47·93	31
94. 32. 10·61	72. 30	+ 4·03	53·0	200·6	75·5	228·5	41·3	247·2	42·0	241·2	16·16	− 0·67	94. 32. 13·97	263. 34. 36·81	32
44. 41. 57·79	45. 39	− 5·37	51·5	199·8	75·7	228·0	40·5	246·4	41·0	239·8	15·34	+ 1·29	44. 41. 53·71	33. 44. 16·55	33
226. 22. 9·32	46. 7	+ 5·33	59·7	207·2	83·0	236·5	48·0	254·5	48·5	247·3	23·09	− 8·73	226. 22. 5·92	35. 24. 28·76	34
190. 35. 16·38	102. 18	− 3·93	54·5	201·8	78·3	231·5	42·8	249·0	44·5	242·0	18·05	− 0·88	190. 35. 11·57	179. 37. 34·41	35
10. 35. 8·80	102. 18	+ 3·93	52·5	200·6	76·3	229·2	41·5	246·7	41·8	239·8	16·05	+ 0·44	10. 35. 13·17	179. 37. 36·01	36
10. 35. 6·35	102. 18	+ 3·93	51·0	205·7	75·0	234·4	37·8	254·0	38·4	247·2	17·94	+ 0·85	10. 35. 11·13	179. 37. 33·97	37
190. 35. 16·46	102. 18	− 3·93	53·0	207·2	76·0	235·8	38·4	254·6	39·5	248·0	19·06	− 1·10	190. 35. 11·43	179. 37. 34·27	38
224. 28. 17·13	45. 36	+ 5·38	57·9	212·0	82·4	242·0	44·3	260·0	45·2	253·0	24·60	−10·36	224. 28. 12·15	33. 30. 34·99	39
46. 8. 16·61	46. 3	− 5·33	46·8	201·6	70·7	230·2	31·6	247·8	33·4	241·7	12·98	− 1·00	46. 8. 10·28	35. 10. 33·12	40
87. 44. 21·04	77. 24	+ 3·94	46·2	201·2	70·0	230·0	30·8	247·0	32·5	241·0	12·34	+ 0·38	87. 44. 25·36	256. 46. 48·20	41
270. 41. 18·45	75. 0	− 3·97	57·8	212·0	82·0	242·2	43·0	258·4	43·9	252·0	23·91	+ 2·65	270. 41. 17·13	259. 43. 39·97	42

Co-efficient of Correction for Collimation, Face Right, − 3″·84.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 14″·02.
Zero of Azimuth, 10°. 57′. 40″·98; October 10 to 14, 10°. 57′. 37″·35; October 16, 10°. 57′. 40″·32; October 17 to 20, 10°. 57′. 37″·16.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

4. The reading for *g* was set down 62ᵈ·1.

18. The correction applied in forming Circle Reading for mean of wires observed is − 33″·00.

35. The reading for *f* was set down 221ᵈ·8.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
Nov. 6	E	1	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·354	3·692	3·298	3·446
	E	2	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·683	5·143	5·105	5·247
Nov. 7	D	3	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·828	5·291	5·162	5·371
	D	4	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·421	3·817	3·410	3·610
	D	5	☽ 1 L.....	Left	11·0	15·2	19·2	23·5	27·5	31·0	..	19. 19. 21·23	2·39	19. 19. 23·62	3·113	3·428	3·156	3·586
	D	6	☽ 1 L.....	Right	37·2	40·9	45·1	49·1	53·2	57·2	..	19. 26. 47·12	2·39	19. 26. 49·51	5·456	6·067	5·698	5·731
	D	7	α Aquilæ ...	Left	44·6	47·7	51·0	54·4	57·5	0·9	..	19. 47. 52·68	2·41	19. 47. 55·09	0·888	1·364	1·324	1·453
	D	8	α Aquilæ ...	Right	34·9	38·0	41·2	44·6	47·8	51·1	..	19. 52. 42·93	2·41	19. 52. 45·34	1·603	2·008	1·602	1·792
Nov. 8	JC	9	☽ 1 L.....	Left	43·8	48·0	52·2	56·2	0·2	3·8	— 0·08	20. 16. 53·95	3·24	20. 16. 57·19	6·906	7·171	6·973	7·464
	JC	10	☽ 1 L.....	Right	10·4	14·1	17·8	22·2	26·1	30·2	— 0·08	20. 24. 20·05	3·25	20. 24. 23·30	4·646	5·270	4·884	4·923
	JC	11	α Aquilæ ...	Left	49·4	52·9	56·4	59·8	2·9	6·0	— 0·08	20. 28. 57·82	3·25	20. 29. 1·07	7·364	7·849	7·926	8·133
	JC	12	α Aquilæ ...	Right	49·0	52·0	55·1	58·5	2·1	5·1	— 0·08	20. 32. 56·89	3·25	20. 33. 0·14	5·610	5·874	5·406	5·736
	JC	13	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·384	3·730	3·316	3·538
	JC	14	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·711	5·161	5·190	5·406
Nov. 10	E	15	☽ 1 L.....	Left	..	51·4	54·5	58·1	..	..	+ 0·16	2. 43. 54·84	5·27	2. 44. 0·11	6·794	7·345	7·380	7·610
	E	16	☽ 1 L.....	Right	28·4	31·3	34·7	38·2	41·9	45·3	+ 0·16	3. 6. 36·79	5·29	3. 6. 42·08	6·727	6·904	6·462	6·859
Nov. 11	S	17	☽ 1 L.....	Left	26·3	31·0	35·0	39·3	44·2	48·4	+ 0·04	22. 1. 37·41	6·06	22. 1. 43·47	6·999	7·223	6·981	7·634
	S	18	☽ 2 L.....	Left	26·9	31·0	35·4	40·6	44·7	49·3	+ 0·04	22. 4. 38·02	6·06	22. 4. 44·08	6·999	7·223	6·981	7·634
	S	19	☽ 1 L.....	Right	18·2	22·3	26·7	31·1	35·9	40·8	+ 0·04	22. 19. 29·21	6·07	22. 19. 35·28	2·405	3·223	2·852	2·836
	S	20	☽ 2 L.....	Right	18·0	22·0	26·4	30·8	35·4	39·8	+ 0·04	22. 22. 28·77	6·07	22. 22. 34·84	2·405	3·223	2·852	2·836
	S	21	ε Pegasi	Left	46·6	50·1	53·3	56·8	0·0	3·4	+ 0·04	22. 45. 55·07	6·09	22. 46. 1·16	6·552	7·056	7·088	7·285
	S	22	ε Pegasi	Right	1·0	4·4	7·4	11·0	14·3	17·9	+ 0·04	22. 54. 9·37	6·09	22. 54. 15·46	1·812	2·157	1·596	2·025
	S	23	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·400	3·755	3·386	3·637
	S	24	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·719	5·077	5·201	5·434
Nov. 13	C	25	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·640	5·057	5·212	5·450
	C	26	☽ 2 L.....	Right	9·2	13·7	18·2	23·1	27·7	32·3	— 0·12	23. 17. 20·58	7·55	23. 17. 28·13	5·084	5·826	5·490	5·538
	C	27	☽ 2 L.....	Left	22·7	27·3	32·0	36·6	41·4	45·2	— 0·12	23. 24. 34·08	7·55	23. 24. 41·63	2·610	2·832	2·430	2·002
	C	28	ζ Pegasi	Left	55·0	58·3	1·5	5·0	8·4	11·4	— 0·12	23. 33. 3·15	7·56	23. 33. 10·71	7·989	8·470	8·390	8·540
	C	29	ζ Pegasi	Right	53·3	56·3	59·6	3·1	6·4	10·0	— 0·12	23. 38. 1·33	7·56	23. 38. 8·89	7·020	7·182	6·822	7·270
	C	30	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·374	3·690	3·336	3·571
Nov. 14	E	31	☽ 2 L.....	Left	48·6	52·9	56·9	1·4	5·6	9·4	+ 0·16	3. 55. 59·29	8·26	3. 56. 7·55	6·836	7·115	7·073	7·302
	E	32	☽ 2 L.....	Right	55·9	59·5	3·5	7·7	11·9	15·7	+ 0·16	4. 8. 5·86	8·27	4. 8. 14·13	4·643	5·147	4·835	4·862
	E	33	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·437	3·834	3·357	3·522
	E	34	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·833	5·203	5·196	5·470
	E	35	α Orionis ...	Left	45·1	48·3	51·6	55·0	58·3	1·3	+ 0·16	5. 1. 53·43	8·30	5. 2. 1·73	0·169	0·587	0·363	0·812
	E	36	α Orionis ...	Right	31·0	34·2	37·6	40·7	43·8	47·4	+ 0·16	5. 7. 39·28	8·30	5. 7. 47·58	7·813	8·068	7·780	8·098
Nov. 15	D	37	☽ 2 L.....	Left	27·0	31·6	36·2	41·0	45·5	49·8	..	1. 29. 38·52	8·96	1. 29. 47·48	1·530	1·890	1·296	1·798
	D	38	☽ 2 L.....	Right	7·2	11·4	16·1	21·0	25·5	30·4	..	1. 38. 18·60	8·96	1. 38. 27·56	0·558	1·337	0·980	0·981
	D	39	ν Piscium ...	Left	45·6	48·8	52·0	55·2	58·6	1·7	..	2. 3. 53·65	8·98	2. 4. 2·63	1·142	1·641	1·508	1·762
	D	40	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·441	3·831	3·430	3·633
	D	41	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·819	5·282	5·177	5·418
	D	42	ν Piscium ...	Right	24·3	27·6	30·9	34·4	37·7	41·0	..	2. 49. 32·65	9·00	2. 49. 41·65	3·046	3·396	2·931	3·340

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, — 0″·21.

15, 16, 39, 42. Cloudy.

18, 20. The second limb defective.

42. Very faint.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
10. 35. 6·88	102. 18	+ 4·03	43·6	210·2	65·7	240·2	26·6	264·3	29·0	256·6	17·03	+ 1·03	10. 35. 11·94	179. 37. 28·97	1
190. 35. 17·04	102. 18	— 4·03	45·0	211·7	67·0	241·8	28·5	265·8	31·3	258·4	18·69	— 1·40	190. 35. 11·61	179. 37. 28·64	2
190. 35. 21·56	102. 18	— 4·03	45·6	209·1	67·0	237·8	34·2	259·3	35·5	252·3	17·60	— 1·16	190. 35. 16·37	179. 37. 41·38	3
10. 35. 11·34	102. 18	+ 4·03	47·1	210·9	68·9	239·6	36·8	260·8	38·0	253·5	19·45	+ 1·56	10. 35. 16·93	179. 37. 41·94	4
127. 42. 6·63	77. 2	+ 4·04	39·7	202·8	61·0	231·4	28·0	251·4	30·0	244·3	11·08	+ 0·28	127. 42. 10·95	296. 44. 35·96	5
309. 13. 39·10	76. 1	— 4·06	54·4	217·7	77·0	247·5	43·3	267·2	45·3	260·2	26·83	+ 3·62	309. 13. 38·66	298. 16. 3·67	6
192. 15. 48·30	42. 56	+ 5·78	41·5	204·6	63·8	233·7	29·0	253·2	30·3	246·1	12·78	— 0·53	192. 15. 53·55	1. 18. 18·56	7
14. 1. 6·84	42. 58	— 5·78	47·0	209·9	69·1	239·5	34·6	259·5	36·3	252·3	18·53	+ 6·70	14. 1. 7·76	3. 3. 32·77	8
126. 34. 31·86	72. 38	+ 4·13	42·2	204·0	64·6	233·0	31·2	255·5	31·2	246·2	13·49	— 0·38	126. 34. 35·59	295. 36. 52·85	9
308. 8. 8·13	71. 36	— 4·15	52·0	213·6	75·0	243·8	41·8	265·9	43·4	258·2	24·21	+ 3·97	308. 8. 7·95	297. 10. 25·21	10
206. 59. 58·13	43. 54	+ 5·68	45·3	207·0	68·0	236·8	34·2	258·4	36·3	251·6	17·20	— 5·10	206. 59. 58·71	16. 2. 15·97	11
28. 23. 35·98	44. 5	— 5·66	47·1	209·3	69·3	238·0	35·6	259·7	37·8	252·6	18·68	+ 6·60	28. 23. 36·92	17. 25. 54·18	12
10. 35. 8·58	102. 18	+ 4·03	47·3	209·1	69·6	238·0	36·0	259·7	37·8	252·6	18·76	+ 1·41	10. 35. 14·02	179. 37. 31·28	13
190. 35. 19·77	102. 18	— 4·03	43·8	205·3	65·6	234·0	31·0	254·2	33·3	248·0	14·40	— 0·46	190. 35. 15·28	179. 37. 32·54	14
203. 4. 7·76	43. 35	+ 5·72	43·5	208·5	68·5	240·4	30·7	264·0	33·0	256·5	18·14	— 6·15	203. 4. 7·33	12. 6. 24·59	15
30. 49. 17·04	44. 27	— 5·63	44·0	208·5	68·5	240·2	30·2	263·8	31·7	256·4	17·91	+ 5·73	30. 49. 17·14	19. 51. 34·40	16
106. 19. 34·92	71. 20	+ 4·16	41·5	204·2	64·1	235·2	27·2	258·8	28·9	251·5	13·93	— 0·55	106. 19. 38·53	275. 21. 55·79	17
106. 19. 34·92	70. 55	+ 4·17	41·5	204·2	64·1	235·2	27·2	258·8	28·9	251·5	13·93	— 0·57	106. 19. 38·52	275. 21. 52·16	18
289. 46. 48·14	68. 39	— 4·23	46·2	209·5	69·5	240·8	32·1	264·2	34·3	256·9	19·19	+ 2·70	289. 46. 46·61	278. 49. 3·87	19
289. 46. 48·14	68. 11	— 4·24	46·2	209·5	69·5	240·8	32·1	264·2	34·3	256·9	19·19	+ 2·76	289. 46. 46·66	278. 49. 0·59	20
215. 24. 26·75	44. 27	+ 5·63	45·5	209·6	69·3	241·2	31·8	263·8	32·2	255·2	18·58	— 6·41	215. 24. 25·97	24. 26. 43·23	21
38. 11. 12·42	45. 1	— 5·57	40·6	204·7	64·5	235·2	25·5	257·1	26·5	247·5	12·70	+ 0·41	38. 11. 7·26	27. 13. 24·52	22
10. 35. 10·75	102. 18	+ 4·03	40·8	204·3	64·1	235·2	26·7	257·2	27·1	248·9	13·04	+ 0·16	10. 35. 14·94	179. 37. 32·20	23
190. 35. 19·40	102. 18	— 4·03	46·7	211·1	71·3	242·5	33·8	264·1	34·2	255·5	19·90	— 1·66	190. 35. 13·71	179. 37. 30·97	24
190. 35. 18·68	102. 18	— 4·03	41·5	208·3	66·4	241·0	27·5	263·1	28·9	255·3	16·5c	— 0·92	190. 35. 13·73	179. 37. 36·44	25
273. 3. 29·43	74. 16	— 4·09	47·5	214·7	73·4	247·5	34·0	269·6	35·0	261·5	22·90	+ 2·99	273. 3. 28·33	262. 5. 51·04	26
94. 21. 43·58	73. 12	+ 4·12	36·6	203·8	61·6	235·9	22·0	257·0	23·0	249·6	11·19	+ 0·33	94. 21. 48·03	263. 24. 10·74	27
212. 15. 18·35	43. 0	+ 5·78	48·0	215·8	74·0	249·0	34·4	269·8	35·2	261·6	23·48	—12·00	212. 15. 12·13	21. 17. 34·84	28
33. 59. 29·81	43. 18	— 5·74	39·0	206·1	63·8	238·0	22·9	257·4	24·3	250·4	12·74	+ 0·48	33. 59. 24·55	23. 1. 47·26	29
10. 35. 8·59	102. 18	+ 4·03	38·5	205·5	63·9	238·0	22·6	258·2	24·0	250·2	12·61	+ 0·07	10. 35. 12·69	179. 37. 35·40	30
138. 34. 32·79	42. 55	+ 5·79	51·5	204·2	75·5	234·0	43·5	253·5	43·8	245·6	18·95	— 7·17	138. 34. 31·41	307. 36. 48·73	31
322. 8. 5·86	41. 30	— 5·95	49·0	201·5	73·0	232·0	39·6	248·7	40·3	242·5	15·83	+ 4·00	322. 8. 3·91	311. 10. 21·23	32
10. 35. 10·34	102. 18	+ 4·03	51·0	203·7	76·5	234·5	42·7	251·5	42·7	244·3	18·36	+ 1·32	10. 35. 15·69	179. 37. 33·01	33
190. 35. 22·01	102. 18	— 4·03	51·0	203·5	74·0	234·0	42·2	250·6	42·5	243·5	17·69	— 1·18	190. 35. 16·80	179. 37. 34·12	34
174. 45. 20·26	45. 6	+ 5·56	48·5	201·2	73·3	231·5	40·0	248·0	39·8	241·0	15·41	— 3·11	174. 45. 22·71	343. 47. 40·03	35
356. 45. 2·84	44. 52	— 5·59	49·5	201·5	73·5	232·0	40·3	248·0	40·5	241·3	15·83	+ 3·56	356. 45. 0·81	345. 47. 18·13	36
93. 11. 2·15	73. 12	+ 4·12	52·1	206·6	77·0	235·8	43·1	256·2	43·5	249·1	20·43	— 2·46	93. 11. 3·81	262. 13. 22·42	37
274. 45. 36·80	71. 55	— 4·14	47·0	200·3	70·7	230·2	35·2	248·8	36·0	241·5	13·71	+ 0·46	274. 45. 33·12	263. 47. 51·73	38
201. 0. 57·68	47. 3	+ 5·38	52·5	206·8	76·8	236·3	41·3	255·9	42·2	248·8	20·08	— 7·25	201. 0. 55·81	10. 3. 14·42	39
10. 35. 12·29	102. 18	+ 4·03	46·2	200·8	70·5	230·2	34·7	248·6	35·5	241·7	13·53	+ 0·27	10. 35. 16·59	179. 37. 35·20	40
190. 35. 21·97	102. 18	— 4·03	55·6	209·5	79·3	239·2	44·0	257·8	44·2	250·3	22·49	— 2·23	190. 35. 15·71	179. 37. 34·32	41
36. 2. 1·31	49. 12	— 5·21	46·0	201·0	70·4	230·2	34·0	248·0	35·3	241·0	13·24	+ 0·82	36. 1. 56·92	25. 4. 15·53	42

Co-efficient of Correction for Collimation, Face Right, — 5″·94.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, 12″·29.
Zero of Azimuth, 10°. 57′. 42″·97; November 7, 10°. 57′. 34″·99; November 8 to 11, 10°. 57′. 42″·74; November 13, 10°. 57′. 37″·29; November 14, 10°. 57′. 42″·68; November 15, 10°. 57′. 41″·39.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, — 2′. 4″·66.

15. The correction applied in forming Circle-Reading for mean of wires observed is — 29″·92.
18, 20. By computation, it appeared that the difference between the azimuth of the point opposite the Sun and the azimuth of the second limb of the Moon was 5°. 11′ and 5°. 3′ respectively. The correction applied to the Concluded Azimuth is —3″·62 in the first observation of the second limb, and —3″·33 in the second observation.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Horizontal Transit over Vertical Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Personal Equation.	Concluded Clock Time of Horizontal Transit over Mean of Vertical Wires.	Clock Slow.	Sidereal Time.	Readings of Microscopes of Horizontal Circle. a	b	c	d
					s	s	s	s	s	s	s	h m s	s	h m s	rev.	rev.	rev.	rev.
Dec. 3	D	1	♑ Piscium ...	Left	22·6	26·0	29·2	32·5	35·8	38·6	..	1. 0. 30·78	17·50	1. 0. 48·28	3·576	3·970	4·103	4·385
	D	2	♑ Piscium ...	Right	22·4	25·4	28·7	31·9	35·4	38·4	..	1. 6. 30·37	17·50	1. 6. 47·87	6·190	6·522	6·186	6·495
	D	3	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·510	3·932	3·391	3·501
	D	4	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·823	5·219	5·211	5·410
Dec. 4	E	5	☽ 1 L.	Left	10·4	14·0	17·4	20·9	24·1	27·2	+ 0·16	22. 31. 19·16	17·60	22. 31. 36·76	6·396	6·667	6·820	7·106
	E	6	☽ 1 L.	Right	23·0	26·2	29·4	32·9	36·2	39·6	+ 0·16	22. 41. 31·38	17·60	22. 41. 48·98	2·709	3·146	2·624	2·728
	E	7	ε Pegasi	Right	2·7	5·6	9·1	12·6	16·0	19·5	+ 0·16	22. 48. 11·08	17·60	22. 48. 28·68	7·103	7·314	6·886	7·343
	E	8	ε Pegasi	Left	12·0	15·6	19·1	22·9	25·9	29·1	+ 0·16	22. 54. 20·93	17·60	22. 54. 38·53	5·623	6·210	6·049	6·165
	E	9	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·709	5·052	5·176	5·489
	E	10	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·456	3·797	3·390	3·579
Dec. 5	C	11	☽ 1 L.	Right	47·4	50·8	54·6	58·6	2·3	6·2	— 0·12	20. 59. 56·53	17·38	21. 0. 13·91	8·088	8·526	8·190	8·310
	C	12	☽ 1 L.	Left	33·2	37·1	40·8	44·8	48·5	51·9	— 0·12	21. 4. 42·60	17·38	21. 4. 59·98	3·640	3·864	3·705	4·130
	C	13	α Aquilæ ...	Left	43·5	47·0	50·5	54·0	57·5	0·6	— 0·12	21. 21. 52·06	17·37	21. 22. 9·43	7·518	8·104	8·000	8·110
	C	14	α Aquilæ ...	Right	55·4	58·6	2·2	5·8	9·2	12·9	— 0·12	21. 27. 3·90	17·37	21. 27. 21·27	3·703	3·959	5·458	3·876
	C	15	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·500	3·889	3·348	3·540
	C	16	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·864	5·292	5·172	5·384
Dec. 6	JC	17	☽ 1 L.....	Left	58·1	1·7	5·6	9·7	13·4	17·0	— 0·08	21. 35. 7·67	16·75	21. 35. 24·42	2·013	2·205	2·257	2·649
	JC	18	☽ 1 L.....	Right	40·3	43·7	47·4	51·5	55·4	59·2	— 0·08	21. 45. 49·50	16·75	21. 46. 6·25	2·524	3·133	2·693	2·691
	JC	19	α Aquilæ ...	Right	51·9	55·2	58·7	2·4	6·0	9·7	— 0·08	21. 51. 0·57	16·75	21. 51. 17·32	6·612	6·780	6·257	6·736
	JC	20	α Aquilæ ...	Left	54·9	58·5	2·1	6·0	9·7	12·8	— 0·08	21. 55. 3·92	16·75	21. 55. 20·67	6·906	7·587	7·466	7·594
	JC	21	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·829	5·216	5·218	5·449
	JC	22	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·458	3·874	3·422	3·539
Dec. 7	D	23	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·463	3·891	3·429	3·638
	D	24	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·868	5·328	5·161	5·437
	D	25	☽ 1 L.....	Left	32·0	36·0	40·0	44·0	47·7	51·2	..	22. 48. 41·82	16·55	22. 48. 58·37	1·022	1·287	1·228	1·586
	D	26	☽ 1 L.....	Right	53·7	57·2	1·0	4·9	8·7	12·6	..	22. 58. 3·02	16·54	22. 58. 19·56	1·669	2·195	1·818	1·781
	D	27	♑ Piscium ...	Right	4·4	7·4	10·8	14·2	17·3	20·6	..	1. 6. 12·45	16·53	1. 6. 28·98	4·042	4·504	4·009	4·162
	D	28	♑ Piscium ...	Left	37·4	40·9	44·2	47·4	50·7	53·4	..	1. 10. 45·67	16·53	1. 11. 2·20	0·360	0·852	0·649	0·809
Dec. 8	E	29	☽ 1 L.	Left	28·6	33·0	37·7	42·1	46·5	50·4	+ 0·16	8. 32. 39·88	16·11	8. 32. 55·99	2·075	2·866	2·485	2·423
	E	30	☽ 1 L.	Right	44·4	49·0	53·0	57·4	2·0	6·2	+ 0·16	8. 41. 55·50	16·11	8. 42. 11·61	0·715	1·024	0·546	1·038
	E	31	Regulus	Right	12·2	15·8	19·0	22·9	26·0	29·6	+ 0·16	8. 49. 21·08	16·11	8. 49. 37·19	7·128	7·524	7·156	7·390
	E	32	Regulus	Left	47·0	50·6	54·2	57·8	1·2	4·2	+ 0·16	8. 55. 55·99	16·11	8. 56. 12·10	7·683	7·958	7·966	8·337
	E	33	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·772	5·196	5·047	5·318
	E	34	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·407	3·732	3·357	3·616
Dec. 9	K	35	☽ 1 L.....	Left	58·7	3·7	8·4	12·4	16·4	21·1	+ 0·04	23. 18. 10·16	15·97	23. 18. 26·13	5·278	5·510	5·226	5·852
	K	36	☽ 1 L.....	Right	35·7	39·6	43·6	48·2	53·2	57·1	+ 0·04	23. 30. 46·27	15·97	23. 31. 2·24	0·540	1·299	0·848	0·761
	K	37	ζ Pegasi	Right	49·8	53·1	56·4	59·6	3·1	6·7	+ 0·04	23. 40. 58·16	15·96	23. 41. 14·12	6·080	6·272	5·838	6·290
	K	38	ζ Pegasi	Left	1·4	4·6	7·5	11·2	14·6	17·9	+ 0·04	23. 49. 9·57	15·96	23. 49. 25·53	2·840	3·454	3·340	3·481
	K	39	Collimator ..	Right	..	..	..	..	..	..	..	...	..	...	4·765	5·189	5·260	5·531
	K	40	Collimator ..	Left	..	..	..	..	..	..	..	...	..	...	3·485	3·845	3·480	3·722
Dec. 10	JC	41	☽ 1 L.....	Left	..	30·7	34·7	39·3	43·1	47·2	— 0·08	1. 43. 38·92	15·43	1. 43. 54·35	3·983	4·254	4·128	4·453
	JC	42	☽ 1 L.	Right	8·3	11·7	15·4	20·2	23·8	28·4	— 0·08	2. 9. 17·89	15·42	2. 9. 33·31	1·419	2·048	1·684	1·583
	JC	43	α Orionis ...	Right	27·5	30·3	33·8	37·2	40·2	43·6	— 0·08	6. 17. 35·35	15·33	6. 17. 50·68	2·786	3·192	2·586	2·822
	JC	44	α Orionis ...	Left	27·7	30·8	34·0	37·5	40·6	43·8	— 0·08	6. 21. 35·65	15·33	6. 21. 50·98	1·364	1·883	1·665	1·904

The observations of transits are usually made by the galvanic or chronographic method, the wires employed being *s*, *t*, *u*, *v*, *w*, *x*, taken in the order of transit, Face Right, or *x*, *w*, *v*, *u*, *t*, *s*, Face Left; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are *q*, *r*, *s*, *x*, *y*, *z*, Face Right, or *z*, *y*, *x*, *s*, *r*, *q*, Face Left; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·8 of *a*, to 7ʳ·7 of *b*, to 7ʳ·9 of *c*, and to 8ʳ·0 of *d*.

Correction for Runs of Microscopes for 100″, — 0″·28.

8. The clock-time at the third wire is also used in a transit of 81 Aquarii observed with the Transit-Circle.

29, 30. Very tremulous.

35. Cloudy; very faint.

41, 42. Bad image. The microscopes and levels were read with great difficulty owing to a great deposition of moisture on the instrument.

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Concluded Reading of Horizontal Circle.	Approx. Zenith Distance.	Correction for Collimation.	Readings of Levels parallel to the Axis of the Vertical Circle.								Concluded Level Indication.	Correction for Level.	Corrected Reading of Horizontal Circle.	Concluded Azimuth, measuring from S. to W., N., and E.	No. for Reference.
			e	*f*	*g*	*h*	*i*	*k*	*l*	*m*					
° ′ ″	° ′	″	div.	div.	div.	div.	div.	div.	div.	div.	″	″	° ′ ″	° ′ ″	
179. 27. 32·68	47. 10	+ 4·68	30·2	212·0	33·0	224·4	12·0	275·8	13·6	266·4	8·43	− 3·37	179. 27. 33·99	348. 29. 56·85	1
1. 29. 1·99	47. 0	− 4·69	30·2	212·1	33·5	224·8	12·5	276·4	14·5	267·2	8·90	+ 3·83	1. 29. 1·13	350. 31. 23·99	2
10. 35. 12·03	102. 18	+ 3·51	32·8	214·2	36·1	227·4	15·0	277·8	17·2	269·0	11·19	+ 1·39	10. 35. 16·93	179. 37. 39·79	3
190. 35. 21·50	102. 18	− 3·51	34·8	216·1	37·9	228·8	16·8	279·0	19·0	270·2	12·83	− 1·75	190. 35. 16·24	179. 37. 39·10	4
180. 39. 17·09	58. 57	+ 4·00	29·5	211·8	33·0	226·0	13·6	277·4	15·5	269·0	9·48	− 2·82	180. 39. 18·27	349. 41. 45·98	5
3. 31. 46·87	58. 40	− 4·02	31·5	213·8	35·4	227·0	15·4	279·6	18·5	269·7	11·36	+ 4·00	3. 31. 46·85	352. 34. 14·56	6
36. 14. 33·04	44. 37	− 4·88	26·5	208·2	29·4	221·3	9·4	273·5	10·2	263·4	5·24	+ 0·45	36. 14. 28·61	25. 16. 56·32	7
218. 18. 49·14	45. 2	+ 4·85	40·0	221·8	43·8	236·2	24·5	287·3	26·8	279·2	19·95	−15·13	218. 18. 38·86	27. 21. 6·57	8
190. 35. 19·20	102. 18	− 3·51	35·5	216·5	38·8	230·2	19·5	279·3	22·0	269·8	13·95	− 1·99	190. 35. 13·70	179. 37. 41·41	9
10. 35. 10·91	102. 18	+ 3·51	27·0	208·5	30·5	221·6	11·0	270·0	12·0	260·8	5·18	+ 0·08	10. 35. 14·50	179. 37. 42·21	10
322. 30. 15·58	65. 57	− 3·76	36·9	214·6	43·0	229·0	25·8	277·0	28·0	268·7	15·38	+ 4·72	322. 30. 16·54	311. 32. 39·68	11
143. 37. 26·13	65. 25	+ 3·77	29·5	206·8	34·3	220·8	15·8	266·9	18·0	259·0	6·39	− 0·73	143. 37. 29·17	312. 39. 52·31	12
224. 45. 2·35	47. 24	+ 4·66	38·0	216·0	44·0	229·7	26·0	276·7	28·4	268·2	15·88	−10·19	224. 44. 56·82	33. 47. 19·96	13
46. 22. 22·94	47. 52	− 4·62	30·5	207·6	35·5	221·0	16·9	267·0	19·0	258·6	7·01	+ 2·00	46. 22. 20·32	35. 24. 43·46	14
10. 35. 11·47	102. 18	+ 3·51	34·0	211·0	39·8	225·0	21·5	271·0	23·3	263·0	11·08	+ 1·37	10. 35. 16·35	179. 37. 39·49	15
190. 35. 22·00	102. 18	− 3·51	35·9	213·0	40·9	226·0	23·0	271·2	25·2	263·4	12·33	− 1·64	190. 35. 16·85	179. 37. 39·99	16
136. 36. 26·86	64. 4	+ 3·81	25·4	205·3	31·6	220·2	10·5	270·6	11·7	259·8	4·39	+ 0·20	136. 36. 30·87	305. 38. 51·87	17
319. 6 45·29	62. 45	− 3·86	34·8	214·0	41·2	229·7	20·6	280·0	23·8	272·2	14·54	+ 5·02	319. 6. 46·45	308. 9. 7·45	18
53. 34. 11·65	50. 12	− 4·46	27·8	207·4	33·9	222·0	12·7	271·6	15·0	262·8	6·65	+ 1·54	53. 34. 8·73	42. 36. 29·73	19
234. 44. 41·59	50. 38	+ 4·43	39·2	218·0	45·8	233·7	24·8	283·0	28·7	275·8	18·63	−11·34	234. 44. 34·68	43. 46. 55·68	20
190. 35. 21·96	102. 18	− 3·51	37·2	216·0	43·0	231·2	21·8	280·0	25·3	272·2	15·84	− 2·41	190. 35. 16·04	179. 37. 37·04	21
10. 35. 12·17	102. 18	+ 3·51	27·2	206·6	33·2	221·0	11·2	269·3	14·0	260·6	5·39	+ 0·13	10. 35. 15·81	179. 37. 36·81	22
10. 35. 12·82	102. 18	+ 3·51	26·0	208·6	32·1	224·0	10·5	275·1	12·6	266·1	6·88	+ 0·45	10. 35. 16·78	179. 37. 39·87	23
190. 35. 22·76	102. 18	− 3·51	34·7	217·3	41·0	232·9	19·3	283·2	22·3	275·8	15·81	− 2·40	190. 35. 16·85	179. 37. 39·94	24
139. 5. 48·75	57. 42	+ 4·06	27·5	209·8	33·1	225·0	9·0	272·9	10·7	262·5	6·31	− 0·95	139. 5. 51·86	308. 8. 14·95	25
321. 26. 11·19	56. 34	− 4·11	34·5	217·1	41·0	232·7	19·1	282·0	22·0	273·8	15·28	+ 6·92	321. 26. 14·00	310. 28. 37·09	26
1. 22. 39·36	47. 1	− 4·69	27·0	209·6	32·9	225·1	10·9	277·0	12·6	268·2	7·91	+ 2·90	1. 22. 37·57	350. 25. 0·66	27
182. 55. 25·43	46. 54	+ 4·70	33·3	215·9	39·6	231·6	17·1	283·2	19·7	275·2	14·45	− 9·03	182. 55. 21·10	351. 57. 44·19	28
284. 56. 33·91	78. 48	+ 3·49	33·0	217·5	41·2	236·7	15·6	289·0	19·5	281·2	16·71	− 2·37	284. 56. 35·03	93. 58. 55·27	29
106. 40. 31·67	80. 9	− 3·48	18·5	205·0	26·5	223·0	2·5	276·0	1·0	262·0	1·81	− 0·52	106. 40. 27·67	95. 42. 47·91	30
343. 59. 38·27	41. 28	− 5·18	26·3	212·5	34·0	230·5	8·5	283·5	11·0	273·3	9·95	+ 5·83	343. 59. 38·92	333. 1. 59·16	31
166. 20. 4·32	41. 2	+ 5·22	26·0	212·0	34·3	229·5	8·0	281·5	10·5	273·2	9·38	− 5·26	166. 20. 4·28	335. 22. 24·52	32
190. 35. 18·38	102. 18	− 3·51	34·0	219·2	42·5	238·5	16·5	289·3	19·7	281·2	17·61	− 2·79	190. 35. 12·08	179. 37. 32·32	33
10. 35. 9·84	102. 18	+ 3·51	24·0	209·8	31·5	226·5	6·5	278·2	6·5	267·5	6·31	+ 0·33	10. 35. 13·68	179. 37. 33·92	34
114. 43. 28·31	62. 51	+ 3·86	16·4	215·9	24·6	222·0	1·0	275·0	0·6	262·0	2·19	+ 1·34	114. 43. 33·51	283. 45. 52·75	35
297. 20. 32·94	61. 1	− 3·92	36·5	223·4	44·6	241·9	17·9	292·3	22·7	285·0	20·54	+ 8·72	297. 20. 37·74	286. 22. 56·98	36
35. 3. 53·28	43. 29	− 4·98	19·5	206·5	27·0	224·4	2·4	276·1	1·5	263·9	2·66	− 2·26	35. 3. 46·04	24. 6. 5·28	37
217. 52. 4·95	44. 2	+ 4·93	35·4	221·6	43·8	241·0	17·1	291·0	22·8	283·8	19·56	−15·26	217. 51. 54·62	26. 54. 13·86	38
190. 35. 22·26	102. 18	− 3·51	28·7	217·6	37·0	236·6	9·0	292·0	12·4	282·6	14·49	− 2·11	190. 35. 16·64	179. 37. 35·88	39
10. 35. 13·85	102. 18	+ 3·51	18·1	207·2	25·8	225·2	0·5	280·9	2·0	268·0	2·96	− 0·40	10. 35. 16·96	179. 37. 36·20	40
131. 23. 12·57	48. 50	+ 4·56	32·0	209·3	41·0	227·2	22·2	273·3	25·8	266·0	12·10	− 6·38	131. 23. 10·75	300. 25. 29·99	41
318. 11. 4·24	45. 33	− 4·81	33·3	210·0	41·7	226·8	22·7	271·6	26·3	264·4	12·10	+ 7·16	318. 11. 6·59	307. 13. 25·83	42
21. 31. 48·58	44. 31	− 4·89	30·6	206·0	39·8	224·2	18·3	270·2	21·8	263·0	9·24	+ 4·51	21. 31. 48·20	10. 34. 7·44	43
202. 56. 4·94	44. 38	+ 4·88	36·2	211·7	45·6	230·2	25·2	276·8	28·6	269·5	15·48	−10·82	202. 55. 59·00	11. 58. 18·24	44

Co-efficient of Correction for Collimation, Face Right $-3''\cdot43$.
The value of one division of each level scale is assumed to be one second of arc.
Level Indication for Horizontal Position of Axis of Vertical Circle, $4''\cdot80$.
Zero of Azimuth, 10°. 57′. 37″·14; December 4, 10°. 57′. 32″·29; December 5, 10°. 57′. 36″·86; December 6, 10°. 57′. 39″·00; December 7, 10°. 57′. 36″·91; December 8, 10°. 57′. 39″·76; December 9 and 10, 10°. 57′. 40″·76.
The Collimator is generally bisected by wire *x*; the correction applied to the Micrometer-equivalents to reduce the Concluded Reading of Horizontal Circle to the reading corresponding to the mean of the wires, is, for Face Right, + 2′. 4″·66, and, for Face Left, − 2′. 4″·66.

28. The reading for *f* was set down $205^{d}\cdot9$.
41. The correction applied in forming Circle Reading for mean of wires observed is + 32″·36.

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ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF ZENITH DISTANCE

WITH THE

ALTAZIMUTH.

1867.

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Observations of Zenith Distance, with the Altazimuth,

DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
Jan. 23	E	1	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	E	2	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
													(Graham 1.)		
Jan. 28	C	3	☽ L. L. (E & E)	Left	14·2	35·0	55·0	16·3	36·2	57·4	..	..	12. 54. 5·68	−34·64	12. 53. 31·04
	C	4	☽ L. L. (E & E)	Right	27·1	50·0	10·4	33·0	54·2	15·6	..	..	13. 6. 21·72	−34·64	13. 5. 47·08
	C	5	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	6	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
													(Hardy.)		
Jan. 30	JC	7	☽ L. L.	Right	3·7	9·3	15·3	22·0	26·8	32·7	− 0·01	−0·08	15. 28. 18·21	4·89	15. 28. 23·10
	JC	8	☽ L. L.	Left	0·9	6·7	13·0	20·4	26·0	32·4	− 0·01	−0·08	15. 37. 16·48	4·90	15. 37. 21·38
	JC	9	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	10	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Feb. 1	C	11	☽ L. L.	Left	27·2	30·8	34·8	38·8	42·0	45·6	..	−0·12	15. 42. 36·41	6·71	15. 42. 43·12
	C	12	☽ L. L.	Right	54·8	58·7	2·8	6·4	10·8	14·1	..	−0·12	15. 52. 4·48	6·72	15. 52. 11·20
	C	13	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	14	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Feb. 6	E	15	☽ L. L.	Left	44·6	47·8	50·6	54·0	57·1	0·0	..	+0·16	2. 57. 52·51	20·43	2. 58. 12·94
	E	16	☽ L. L.	Right	9·4	12·2	15·3	18·8	21·9	24·8	..	+0·16	3. 14. 17·23	20·46	3. 14. 37·69
	E	17	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	18	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Feb. 8	JC	19	☽ L. L.	Right	38·0	41·9	45·6	49·4	53·1	56·8	..	−0·08	3. 10. 47·39	25·42	3. 11. 12·81
	JC	20	☽ L. L.	Left	49·5	53·3	57·0	0·8	4·3	8·2	..	−0·08	3. 13. 58·77	25·43	3. 14. 24·20
	JC	21	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	22	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Feb. 10	E	23	☽ L. L.	Left	15·1	18·3	21·4	24·7	27·7	30·8	..	+0·16	5. 41. 23·16	31·13	5. 41. 54·29
	E	24	☽ L. L.	Right	11·3	14·4	17·3	20·4	23·5	26·6	..	+0·16	5. 50. 19·08	31·14	5. 50. 50·22
	E	25	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	26	Collimator	Left	..	..	..	..	..	..	.	..	....	..	....
Feb. 11	C	27	☽ L. L.	Left	28·5	37·9	46·4	56·0	4·9	14·9	− 0·05	−0·12	2. 22. 51·26	33·44	2. 23. 24·70
	C	28	☽ L. L.	Right	26·2	37·0	45·5	57·0	7·2	16·8	− 0·06	−0·12	2. 27. 51·44	33·45	2. 28. 24·89
	C	29	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	30	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Feb. 14	E	31	☽ U. L.	Left	46·0	48·9	51·7	55·1	57·9	0·8	..	+0·16	2. 49. 53·56	42·65	2. 50. 36·21
	E	32	☽ U. L.	Right	23·0	25·9	28·8	32·0	35·0	38·1	..	+0·16	2. 58. 30·63	42·67	2. 59. 13·30
	E	33	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	34	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Feb. 15	C	35	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	36	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Feb. 16	L	37	☽ U. L.	Left	24·7	27·5	30·2	33·3	36·2	39·0	..	−0·27	3. 55. 31·55	48·86	3. 56. 20·41
	L	38	☽ U. L.	Right	48·2	51·2	54·0	56·6	59·6	2·3	..	−0·27	4. 8. 55·05	48·87	4. 9. 43·92
	L	39	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	L	40	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Feb. 17	JC	41	☽ U. L.	Right	22·4	28·3	34·0	39·3	45·3	50·4	− 0·01	−0·08	7. 51. 36·53	52·38	7. 52. 28·91
	JC	42	☽ U. L.	Left	47·0	52·3	58·4	3·7	10·1	15·4	− 0·01	−0·08	7. 57. 1·06	52·39	7. 57. 53·45

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before: the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^r{\cdot}7$ of A, to $7^r{\cdot}9$ of B, to $7^r{\cdot}8$ of C, and to $7^r{\cdot}8$ of D.

Correction for Runs of Microscopes for 100″, +0″·66; from February 6, +0″·80.

4. Cloudy.

38. Tremulous.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
A	B	C	D		E	F	G	H			Interior.	Exterior.				
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
1·698	2·225	2·032	2·063	315. 47. 20·09	40·0	254·0	71·0	337·0	63·00	..	..	..	..	315. 48. 23·09	102. 18. 25·05	1
3·955	4·560	4·398	4·508	160. 23. 51·08	59·0	272·5	86·5	352·0	80·01	..	..	..	..	160. 25. 11·09	102. 18. 22·95	2
9·774	0·440	0·260	0·094	341. 35. 5·42	40·9	262·2	67·0	350·6	67·68	29·92	46·4	40·7	4. 2·30	341. 32. 10·80	76. 34. 37·34	3
1·330	1·670	1·604	1·850	133. 26. 2·43	51·4	270·0	76·0	356·5	75·98	,,	,,	40·9	3. 42·79	133. 31. 1·20	75. 24. 13·06	4
4·040	4·505	4·416	4·574	160. 23. 52·64	47·4	266·5	71·6	353·6	72·28	..	..	..	..	160. 25. 4·92	102. 18. 16·78	5
1·554	2·117	1·972	2·022	315. 47. 17·10	51·5	269·0	76·0	355·6	75·53	..	..	..	..	315. 48. 32·63	102. 18. 15·51	6
1·148	1·463	1·423	1·648	132. 55. 54·95	50·0	275·2	74·2	360·0	77·35	29·88	45·0	39·5	3. 35·66	133. 0. 47·96	74. 53. 59·82	7
2·394	3·079	2·846	2·730	343. 51. 46·86	38·2	262·3	64·9	349·7	66·29	,,	,,	38·4	3. 27·66	343. 49. 25·49	74. 17. 22·65	8
1·483	2·122	1·967	2·011	315. 47. 15·86	51·8	272·7	75·2	358·3	77·01	..	..	..	..	315. 48. 32·87	102. 18. 15·27	9
4·130	4·606	4·496	4·657	160. 23. 55·62	41·0	262·9	67·0	348·9	67·46	..	..	..	..	160. 25. 3·08	102. 18. 14·94	10
3·516	4·244	4·088	3·874	335. 12. 32·10	53·8	266·1	83·5	350·0	75·86	30·14	50·5	46·2	7. 22·04	335. 6. 25·92	83. 0. 22·22	11
3·010	3·405	3·404	3·540	139. 57. 9·27	48·3	259·9	77·5	344·0	69·94	,,	,,	45·9	6. 32·28	140. 4. 51·49	81. 58. 3·35	12
4·006	4·493	4·436	4·506	160. 23. 51·29	55·3	267·8	85·0	351·1	77·31	..	..	..	..	160. 25. 8·60	102. 18. 20·46	13
1·655	2·250	2·204	2·099	315. 47. 21·91	45·0	257·1	76·6	343·0	67·93	..	..	..	..	315. 48. 29·84	102. 18. 18·30	14
3·525	4·218	4·086	3·887	338. 22. 32·25	47·7	273·5	73·5	360·3	76·27	28·91	44·5	38·9	5. 6·61	338. 18. 41·91	79. 48. 7·15	15
0·701	1·115	1·067	1·272	140. 0. 40·23	41·6	266·8	65·5	353·5	69·36	,,	,,	39·2	6. 24·29	140. 8. 13·88	82. 1. 24·82	16
4·028	4·670	4·521	4·622	160. 23. 55·37	43·4	265·6	68·5	352·0	69·88	..	..	..	..	160. 25. 5·25	102. 18. 16·19	17
1·457	2·105	1·950	1·910	315. 47. 14·40	49·3	270·8	72·5	355·0	74·41	..	..	..	..	315. 48. 28·81	102. 18. 20·25	18
2·464	2·914	2·746	2·956	119. 21. 47·34	45·0	252·6	75·8	337·0	65·10	29·35	52·7	49·1	1. 43·82	119. 24. 36·26	61. 17. 47·20	19
4·486	5·234	4·887	4·554	356. 28. 5·63	58·6	265·3	88·0	349·3	77·81	,,	,,	,,	1. 45·36	356. 27. 38·08	61. 39. 10·98	20
1·624	2·233	2·107	2·084	315. 47. 20·48	48·4	253·0	78·3	338·2	66·98	..	..	..	..	315. 48. 27·46	102. 18. 21·60	21
4·059	4·489	4·586	4·527	160. 23. 53·65	60·0	264·3	89·8	348·7	78·21	..	..	..	..	160. 25. 11·86	102. 18. 22·80	22
1·490	2·176	1·980	1·716	358. 46. 11·28	56·7	264·3	86·2	346·5	75·94	29·75	51·5	50·1	1. 37·10	358. 45. 50·12	59. 20. 58·94	23
2·880	3·413	3·202	3·436	118. 37. 5·28	49·8	256·4	79·2	338·7	68·53	,,	,,	49·7	1. 41·97	118. 39. 55·78	60. 33. 6·72	24
4·035	4·592	4·433	4·592	160. 23. 53·56	58·0	263·7	88·5	345·2	76·36	..	..	..	..	160. 25. 9·92	102. 18. 20·86	25
1·507	2·156	2·003	2·018	315. 47. 16·93	52·7	261·2	83·5	339·6	71·76	..	..	..	..	315. 48. 28·69	102. 18. 20·37	26
2·245	2·680	2·580	2·482	17. 51. 36·76	43·5	262·9	71·4	349·8	69·41	30·12	47·7	44·3	50·06	17. 51. 56·11	40. 14. 52·95	27
2·430	2·640	2·450	2·770	98. 6. 39·71	52·0	270·6	77·8	356·0	76·60	,,	,,	,,	49·68	98. 8. 45·99	40. 1. 56·93	28
1·520	2·085	2·096	2·021	315. 47. 17·31	49·9	266·0	77·9	352·0	73·96	..	..	..	..	315. 48. 31·27	102. 18. 17·79	29
4·205	4·680	4·652	4·716	160. 23. 59·39	45·5	260·0	72·9	346·5	68·74	..	..	..	..	160. 25. 8·13	102. 18. 19·07	30
3·485	4·135	3·779	3·580	7. 22. 25·11	51·6	266·0	81·8	347·8	74·30	30·18	48·5	47·8	1. 11·90	7. 22. 27·51	50. 44. 21·55	31
3·663	4·035	3·776	4·144	107. 37. 31·35	51·8	264·0	79·5	346·2	72·88	,,	,,	47·4	1. 8·99	107. 39. 53·22	49. 33. 4·16	32
4·015	4·626	4·492	4·562	160. 23. 53·96	51·3	263·7	80·8	346·0	72·96	..	..	..	..	160. 25. 6·92	102. 18. 17·86	33
1·548	2·190	1·998	2·035	315. 47. 17·79	51·5	261·8	80·0	345·0	72·08	..	..	..	..	315. 48. 29·87	102. 18. 19·19	34
1·535	2·206	2·084	2·020	315. 47. 18·49	50·6	254·0	84·6	338·0	69·30	..	..	..	..	315. 48. 27·79	102. 18. 21·27	35
4·110	4·585	4·530	4·596	160. 23. 55·21	58·6	259·7	91·4	342·8	75·63	..	..	..	..	160. 25. 10·84	102. 18. 21·78	36
4·523	5·386	4·885	4·578	356. 58. 7·67	52·0	254·7	84·5	339·6	70·21	29·73	57·0	49·7	1. 44·40	356. 57. 33·48	61. 9. 15·58	37
1·715	2·153	1·967	2·273	117. 16. 18·55	53·8	255·6	85·7	338·8	70·98	,,	,,	49·4	1. 36·63	117. 19. 6·16	59. 12. 17·10	38
4·026	4·484	4·408	4·563	160. 23. 51·90	62·7	262·2	95·2	343·8	78·48	..	..	..	..	160. 25. 10·38	102. 18. 21·32	39
1·713	2·323	2·244	2·266	315. 47. 25·31	48·6	247·3	82·2	330·6	64·68	..	..	..	..	315. 48. 29·99	102. 18. 19·07	40
3·552	3·793	3·583	3·886	100. 32. 23·57	52·2	259·7	82·0	342·3	71·56	30·10	52·7	48·4	53·62	100. 34. 28·75	42. 27. 39·69	41
3·434	3·976	3·775	3·598	16. 2. 23·23	54·2	261·4	84·2	344·3	73·53	,,	,,	,,	52·89	16. 2. 43·87	42. 4. 5·19	42

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 6′. 48″·14; from February 6, 58°. 6′. 49″·06.

The Collimator is generally bisected by Wire X; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′. 2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z.D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85° the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

3. The cross-wires of microscope A fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head, 9 in the integer representing −1.

7. The reading for F was set down 280d·2.

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Observations of Zenith Distance, with the Altazimuth,

Day.	Observer.	No. for Reference.	Name of Object.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
March 17	JC	1	☽ U. L.....	Right	15·0	23·7	33·3	43·5	51·8	0·0	+ 0·05	−0·08	10. 36. 37·85	13·95	10. 36. 51·80
	JC	2	☽ U. L	Left	12·2	20·0	27·6	37·1	44·0	51·1	+ 0·03	−0·08	10. 46. 31·95	13·96	10. 46. 45·91
March 20	P	3	☽ U. L.....	Right	25·3	32·2	38·7	46·5	52·8	59·4	+ 0·02	+0·01	13. 46. 42·51	18·92	13. 47. 1·43
	P	4	☽ U. L.....	Left	13·6	19·7	25·3	31·2	37·0	42·7	+ 0·01	+0·01	14. 4. 28·27	18·94	14. 4. 47·21
	P	5	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	P	6	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
March 21	E	7	☽ L. L.....	Left	35·2	38·0	41·5	45·4	48·6	52·5	..	+0·16	9. 46. 43·69	20·25	9. 47. 3·94
	E	8	☽ L. L.....	Right	30·7	33·9	37·0	41·0	44·7	48·4	..	+0·16	9. 56. 39·44	20·27	9. 56. 59·71
	E	9	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	10	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
March 24	D	11	☽ L. L.	Left	23·6	29·7	36·3	43·0	49·5	56·0	..	−0·01	14. 8. 39·67	25·86	14. 9. 5·53
	D	12	☽ L. L.	Right	28·2	35·0	42·4	49·8	56·7	3·4	..	−0·01	14. 18. 45·91	25·87	14. 19. 11·78
	D	13	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	14	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
March 25	E	15	☽ L. L.	Right	34·0	41·6	47·7	54·7	1·2	7·7	− 0·01	+0·16	14. 56. 51·30	27·49	14. 57. 18·79
	E	16	☽ L. L.	Left	17·0	24·8	32·2	39·9	48·0	55·1	− 0·01	+0·16	15. 11. 36·32	27·50	15. 12. 3·82
	E	17	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	18	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
March 26	D	19	☽ L. L.	Right	38·9	44·9	51·0	58·3	4·2	10·9	− 0·01	..	15. 48. 54·69	28·45	15. 49. 23·14
	D	20	☽ L. L.	Left	42·4	49·1	56·4	3·5	10·8	17·4	− 0·01	..	15. 57. 59·92	28·45	15. 58. 28·37
	D	21	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	22	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
March 27	JC	23	☽ L. L.	Left	21·6	26·8	32·2	37·9	43·0	48·2	..	−0·08	16. 15. 34·87	29·46	16. 16. 4·33
	JC	24	☽ L. L.	Right	51·2	56·6	1·7	7·8	13·9	18·8	..	−0·08	16. 24. 4·92	29·47	16. 24. 34·39
	JC	25	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	26	Collimator	Left	..	..	..	..	..	..	..	..	. ..	..	....
March 28	C	27	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	28	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
March 29	E	29	☽ L. L.	Left	19·5	23·8	27·4	32·2	36·1	40·5	..	+0·16	17. 18. 30·08	31·96	17. 19. 2·04
	E	30	☽ L. L.	Right	42·4	46·6	50·8	55·4	59·3	3·5	..	+0·16	17. 24. 53·16	31·96	17. 25. 25·12
	E	31	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	32	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
March 30	D	33	☽ L. L.	Right	48·6	52·2	56·0	0·2	4·3	8·0	..	..	18. 4. 58·22	33·16	18. 5. 31·38
	D	34	☽ L. L.	Left	55·4	59·6	3·4	7·9	11·3	15·5	..	..	18. 9. 5·52	33·17	18. 9. 38·69
	D	35	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	36	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
March 31	JC	37	☽ L. L.	Left	41·4	44·7	47·7	50·8	54·1	57·0	..	−0·08	17. 45. 49·20	34·65	17. 46. 23·85
	JC	38	☽ L. L.	Right	38·9	42·0	45·0	48·5	51·4	54·9	..	−0·08	17. 51. 46·70	34·66	17. 52. 21·36
	JC	39	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	40	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·7 of A, to 7ʳ·9 of B, to 7ʳ·8 of C, and to 7ʳ·8 of D.

Correction for Runs of Microscopes for 100″, +0″·83.

3, 4. Very tremulous.

1, 2, 33, 34. Very faint.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
A	B	C	D		E	F	G	H			Interior.	Exterior				
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
5·503	5·764	5·556	5·914	100. 33. 40·42	38·0	283·7	57·3	371·8	75·21	29·53	37·7	32·7	54·24	100. 35. 49·87	42. 29. 0·93	1
4·676	5·390	4·994	4·737	15. 8. 11·85	30·9	274·7	52·0	365·2	68·21	,,	,,	32·6	55·35	15. 8. 24·71	42. 58. 24·23	2
7·636	8·145	8·021	8·237	114. 25. 10·58	36·1	281·2	55·5	370·0	73·21	29·60	35·0	29·8	1. 29·78	114. 27. 53·57	56. 21. 4·63	3
0·303	0·947	0·595	0·515	0. 35. 22·81	33·0	277·5	54·1	366·8	70·36	,,	,,	29·5	1. 33·99	0. 34. 59·18	57. 31. 49·76	4
1·595	2·174	2·037	2·200	315. 47. 20·09	40·0	277·5	62·0	365·0	73·63	..	..	..	..	315. 48. 33·72	102. 18. 15·22	5
4·122	4·530	4·441	4·682	160. 23. 54·82	35·2	275·8	57·1	363·1	70·31	..	..	..	..	160. 25. 5·13	102. 18. 16·19	6
7·117	8·120	7·750	7·487	344. 59. 55·35	33·0	276·5	54·0	366·0	69·88	29·71	38·0	32·7	3. 14·57	344. 57. 50·66	73. 8. 58·28	7
7·005	7·497	7·415	7·672	129. 59. 46·83	39·5	282·6	58·5	370·5	73·29	,,	,,	,,	3. 1·22	130. 4. 3·34	71. 57. 14·40	8
3·972	4·503	4·477	4·525	160. 23. 51·92	34·7	277·7	55·5	366·5	71·12	..	..	..	..	160. 25. 3·04	102. 18. 14·10	9
1·634	2·214	2·076	2·182	315. 47. 21·07	38·7	281·6	57·5	370·3	74·54	..	..	..	..	315. 48. 35·61	102. 18. 13·33	10
3·422	4·322	3·974	3·674	346. 52. 29·13	54·0	265·3	84·2	351·0	76·13	29·60	51·5	48·0	2. 48·13	346. 50. 57·13	71. 15. 51·81	11
1·970	2·350	2·309	2·521	128. 41. 28·68	50·2	260·0	78·5	344·6	70·83	,,	,,	47·9	2. 42·49	128. 45. 22·00	70. 38. 33·06	12
4·028	4·579	4·503	4·564	160. 23. 53·82	57·8	264·7	86·2	349·0	76·93	..	..	..	..	160. 25. 10·75	102. 18. 21·81	13
1·575	2·142	2·045	2·081	315. 47. 18·51	50·2	256·8	80·5	342·8	70·08	..	..	..	..	315. 48. 28·59	102. 18. 20·35	14
5·053	5·635	5·424	5·608	131. 13. 30·52	53·5	266·2	79·7	347·2	74·66	29·31	49·7	48·1	3. 6·22	131. 17. 51·40	73. 11. 2·46	15
1·976	2·675	2·458	2·227	345. 51. 30·43	51·8	261·2	79·0	344·7	71·68	,,	..	48·2	2. 56·42	345. 49. 45·69	72. 17. 3·25	16
4·032	4·606	4·467	4·552	160. 23. 53·65	54·3	264·4	81·6	345·7	74·01	..	..	..	..	160. 25. 7·66	102. 18. 18·72	17
1·547	2·144	1·975	2·023	315. 47. 17·01	50·5	259·7	79·6	343·5	70·84	..	..	..	..	315. 48. 27·85	102. 18. 21·09	18
5·073	5·604	5·483	5·610	132. 8. 31·02	54·5	271·2	80·0	355·6	77·83	29·32	49·1	42·6	3. 19·61	132. 13. 8·46	74. 6. 19·52	19
1·592	2·344	2·129	1·914	344. 36. 17·29	43·5	259·3	72·7	347·5	68·27	,,	..	42·4	3. 12·73	344. 34. 12·83	73. 32. 36·11	20
4·062	4·615	4·590	4·606	160. 23. 55·74	47·8	262·8	74·2	348·7	70·88	..	..	..	..	160. 25. 6·62	102. 18. 17·68	21
1·502	2·067	1·992	2·022	315. 47. 15·98	53·7	267·7	80·3	354·0	76·44	..	..	..	..	315. 48. 32·42	102. 18. 16·52	22
2·614	3·280	3·196	2·994	342. 6. 57·08	35·0	258·0	63·0	346·0	63·00	29·26	46·8	38·2	3. 49·20	342. 4. 10·88	76. 2. 38·06	23
1·073	1·453	1·481	1·614	133. 25. 54·46	54·8	275·2	79·2	361·5	80·18	,,	..	,,	3. 39·11	133. 30. 53·75	75. 24. 4·81	24
4·193	4·685	4·666	4·733	160. 23. 59·68	38·2	255·7	67·0	344·8	63·93	..	..	..	..	160. 25. 3·61	102. 18. 14·67	25
1·508	2·122	2·064	1·986	315. 47. 16·92	55·0	271·8	80·6	358·2	78·90	..	..	..	..	315. 48. 35·82	102. 18. 13·12	26
4·220	4·659	4·679	4·720	160. 23. 59·69	33·0	261·6	57·0	351·2	63·20	..	..	..	..	160. 25. 2·89	102. 18. 13·95	27
1·371	1·997	1·960	1·940	315. 47. 12·92	52·9	279·6	76·2	368·0	81·68	..	..	..	..	315. 48. 34·60	102. 18. 14·34	28
1·883	2·532	2·420	2·203	340. 31. 27·55	34·7	262·7	59·8	351·3	64·64	29·65	43·5	38·1	4. 21·89	340. 28. 10·30	77. 38. 38·64	29
3·350	3·821	3·760	3·874	135. 2. 23·49	52·2	281·3	74·5	364·3	80·59	,,	..	,,	4. 9·55	135. 7. 53·63	77. 1. 4·69	30
4·118	4·708	4·617	4·684	160. 23. 58·21	34·7	264·0	59·0	350·0	64·43	..	..	..	..	160. 25. 2·64	102. 18. 13·70	31
1·480	2·067	1·974	1·982	315. 47. 15·22	50·6	279·2	73·5	364·5	79·46	..	..	..	..	315. 48. 34·68	102. 18. 14·26	32
4·130	4·569	4·505	4·736	134. 7. 53·88	49·0	279·9	68·8	367·2	78·73	29·87	41·0	36·4	3. 55·90	134. 13. 8·51	76. 6. 19·57	33
5·415	6·240	6·040	5·771	342. 28. 47·41	34·7	266·8	58·7	357·0	66·81	,,	..	,,	3. 48·87	342. 26. 5·35	75. 40. 43·59	34
4·007	4·533	4·537	4·612	160. 23. 53·97	37·7	269·3	60·2	357·2	68·61	..	..	..	..	160. 25. 2·58	102. 18. 13·64	35
1·540	2·079	2·065	2·078	315. 47. 17·73	48·1	278·6	70·1	366·8	78·41	..	..	..	..	315. 48. 36·14	102. 18. 12·80	36
3·439	4·110	4·009	3·884	336. 17. 29·64	31·8	262·0	57·0	350·8	62·90	30·32	42·5	33·3	6. 43·26	336. 11. 49·28	81. 54. 59·66	37
3·636	4·092	4·097	4·245	139. 7. 35·94	50·0	279·2	71·6	365·4	79·05	,,	..	,,	6. 10·89	139. 15. 5·88	81. 8. 16·94	38
1·511	2·124	2·083	2·036	315. 47. 17·64	50·0	277·2	73·3	364·7	78·81	..	..	..	..	315. 48. 36·45	102. 18. 12·49	39
4·166	4·673	4·644	4·746	160. 23. 59·20	34·0	260·6	57·8	348·2	62·65	..	..	..	..	160. 25. 1·85	102. 18. 12·91	40

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 6′. 48″·94.

The Collimator is generally bisected by Wire X; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′.2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

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Observations of Zenith Distance, with the Altazimuth,

Day.	Observer.	No. for Reference.	Name of Object.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
April 21	D	1	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	D	2	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	3	☽ L. L.	Left	41·7	45·5	49·7	53·9	57·9	2·1	..	..	13. 17. 51·80	59·53	13. 18. 51·33
	D	4	☽ L. L.	Right	12·1	16·4	20·8	24·9	29·0	33·0	..	..	13. 21. 22·70	59·54	13. 22. 22·24
April 23	E	5	☽ L. L.	Right	14·8	22·1	30·0	38·7	46·1	54·9	— 0·02	+0·16	16. 41. 34·57	62·31	16. 42. 36·88
	E	6	☽ L. L.	Left	22·4	31·9	40·3	50·1	59·2	8·4	— 0·03	+0·16	16. 52. 45·51	62·32	16. 53. 47·83
	E	7	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	8	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
April 26	C	9	☽ L. L.	Right	25·4	29·8	34·1	38·8	42·6	46·8	..	−0·12	17. 50. 36·13	6·87	17. 50. 43·00
	C	10	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	11	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
April 27	E	12	☽ L. L.	Left	3·5	7·4	10·5	14·3	17·6	21·4	..	+0·16	18. 1. 12·61	8·43	18. 1. 21·04
	E	13	☽ L. L.	Right	8·0	11·3	14·8	18·6	22·6	26·3	..	+0·16	18. 11. 17·09	8·44	18. 11. 25·53
	E	14	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	15	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
May 5	JC	16	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	17	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	18	☽ L. L.	Left	31·7	34·3	37·3	40·2	43·4	46·1	..	−0·08	10. 58. 38·75	19·86	10. 58. 58·61
May 6	E	19	☽ L. L.	Right	30·2	33·1	35·7	38·6	41·3	44·0	..	+0·16	11. 0. 37·31	21·24	11. 0. 58·55
	E	20	☽ L. L.	Left	12·0	15·0	17·6	20·4	23·4	26·2	..	+0·16	11. 12. 19·26	21·25	11. 12. 40·51
	E	21	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	22	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
May 7	D	23	☽ L. L.	Left	36·9	39·7	42·2	45·2	48·0	50·8	..	..	11. 2. 43·80	22·61	11. 3. 6·41
	D	24	☽ L. L.	Right	9·2	12·0	14·7	18·0	20·5	23·3	..	..	11. 8. 16·28	22·62	11. 8. 38·90
	D	25	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	26	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
May 8	C	27	☽ L. L.	Left	29·8	32·5	35·4	38·4	41·6	44·5	..	−0·12	10. 47. 36·91	24·11	10. 48. 1·02
	C	28	☽ L. L.	Right	8·3	11·6	14·3	17·2	20·0	22·9	..	−0·12	10. 57. 15·60	24·12	10. 57. 39·72
	C	29	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	30	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
May 9	JC	31	☽ L. L	Left	1·6	5·0	8·3	11·9	15·4	18·6	..	−0·08	10. 44. 10·05	26·54	10. 44. 36·59
	JC	32	☽ L. L.	Right	53·5	56·4	59·8	3·5	6·9	10·3	..	−0·08	10. 51. 1·65	26·55	10. 51. 28·20
	JC	33	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	34	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
May 10	E	35	☽ L. L.	Right	56·0	59·3	2·1	5·4	8·3	11·5	..	+ 0·16	12. 28. 3·93	29·17	12. 28. 33·10
	E	36	☽ L. L.	Left	28·4	31·4	34·5	37·6	40·7	43·5	..	+0·16	12. 36. 36·18	29·19	12. 37. 5·37
	E	37	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	E	38	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
May 11	S	39	☽ U. L.	Left	52·6	0·8	8·2	16·8	24·3	31·3	+ 0·03	+0·04	11. 9. 12·40	31·57	11. 9. 43·97
	S	40	☽ U. L.	Right	19·7	25·2	31·4	36·6	42·6	48·0	+ 0·01	+0·04	11. 31. 33·97	31·61	11. 32. 5·58
	S	41	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	S	42	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^r \cdot 7$ of A, to $7^r \cdot 9$ of B, to $7^r \cdot 8$ of C, and to $7^r \cdot 8$ of D.

Correction for Runs of Microscopes for 100″, + 0″·48; from May 5, + 0″·63.

9. Cloudy.

May 2 to 9. The instrument was cleaned by a workman from Mr. Simms.

18. Very faint.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
A	B	C	D		E	F	G	H			Interior.	Exterior.				
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
1·410	1·987	2·011	1·990	315. 47. 13·94	54·2	273·5	78·8	360·0	79·13	..	..	..	..	315. 48. 33·07	102. 18. 16·16	1
4·142	4·657	4·675	4·793	160. 23. 58·95	41·2	259·5	68·0	346·1	66·20	..	..	..	..	160. 25. 5·15	102. 18. 15·92	2
5·117	5·908	5·720	5·585	338. 53. 35·66	41·4	257·2	69·8	346·0	66·10	29·51	48·4	43·3	4. 55·82	338. 49. 45·94	79. 17. 3·29	3
1·558	1·947	1·897	2·220	136. 56. 13·60	56·7	272·6	82·0	357·2	79·63	,,	,,	,,	4. 46·64	137. 2. 19·87	78. 55. 30·64	4
0·078	0·398	0·382	0·557	131. 10. 13·63	57·7	258·0	87·5	340·2	73·36	29·64	54·8	50·1	3. 6·90	131. 14. 33·89	73. 7. 44·66	5
5·115	5·868	5·650	5·524	345. 33. 33·99	54·8	256·2	87·5	339·3	71·96	,,	,,	49·6	3. 0·88	345. 31. 45·07	72. 35. 4·16	6
4·189	4·755	4·671	4·713	160. 23. 59·54	52·7	254·7	85·2	336·5	69·79	..	..	..	..	160. 25. 9·33	102. 18. 20·10	7
1·546	2·108	1·967	2·003	315. 47. 16·13	57·7	258·0	88·7	339·7	73·54	..	..	..	..	315. 48. 29·67	102. 18. 19·56	8
6·865	7·376	7·320	7·590	134. 29. 41·59	49·6	266·4	77·4	351·0	73·60	29·47	49·0	46·6	3. 53·82	134. 34. 49·01	76. 27. 59·78	9
1·670	2·256	2·200	2·191	315. 47. 22·82	45·5	260·8	75·3	347·0	69·66	..	..	..	..	315. 48. 32·48	102. 18. 16·75	10
3·990	4·513	4·588	4·604	160. 23. 53·43	48·6	262·1	77·2	348·4	71·58	..	..	..	..	160. 25. 5·01	102. 18. 15·78	11
0·023	0·738	0·643	0·517	339. 40. 18·47	42·6	262·4	70·5	347·5	68·26	29·52	48·0	40·2	4. 38·37	339. 36. 48·36	78. 30. 0·87	12
0·878	1·287	1·284	1·476	135. 20. 47·54	52·2	269·6	78·5	353·0	75·83	,,	,,	39·7	4. 13·48	135. 26. 16·85	77. 19. 27·62	13
4·003	4·578	4·534	4·644	160. 23. 54·05	45·7	261·2	72·0	345·8	68·68	..	..	..	..	160. 25. 2·73	102. 18. 13·50	14
1·572	2·222	2·100	2·164	315. 47. 20·31	51·8	266·5	78·6	349·3	74·06	..	..	..	..	315. 48. 34·37	102. 18. 14·86	15
4·214	4·922	4·763	4·793	160. 24. 3·32	75·3	241·4	124·7	325·0	79·11	..	..	..	..	160. 25. 22·43	102. 18. 30·32	16
1·264	2·097	1·876	1·786	315. 47. 10·38	68·0	232·8	118·0	316·8	71·40	..	..	..	..	315. 48. 21·78	102. 18. 30·33	17
7·226	8·133	7·841	7·790	333. 54. 59·76	66·3	232·0	115·8	315·0	69·78	29·90	67·0	57·3	8. 31·18	333. 47. 38·36	84. 19. 13·75	18
6·585	7·380	7·083	7·150	131. 59. 32·77	96·5	242·2	144·5	310·2	85·86	29·91	75·8	71·1	3. 10·24	132. 4. 8·87	73. 57. 12·41	19
4·995	5·937	5·506	5·313	342. 28. 30·36	82·2	226·6	132·0	296·5	71·83	,,	,,	70·5	3. 33·64	342. 26. 8·55	75. 40. 47·91	20
4·216	4·995	4·726	4·712	160. 24. 2·89	94·8	240·0	144·0	308·5	84·33	..	..	..	..	160. 25. 27·22	102. 18. 30·76	21
1·266	2·112	1·770	1·753	315. 47. 9·22	85·6	230·6	135·0	300·6	75·45	..	..	..	..	315. 48. 24·67	102. 18. 31·79	22
6·017	6·942	6·484	6·240	353. 49. 8·41	78·9	235·1	123·8	308·0	73·96	29·99	72·0	61·5	1. 57·58	353. 48. 24·79	64. 18. 31·67	23
2·498	3·085	2·882	3·072	123. 11. 51·57	90·8	246·2	135·2	319·0	85·30	,,	,,	,,	2. 2·01	123. 15. 18·88	65. 8. 22·42	24
4·117	4·800	4·622	4·698	160. 23. 58·91	91·7	246·2	134·2	318·0	85·03	..	..	..	..	160. 25. 23·94	102. 18. 27·48	25
1·361	2·083	1·914	1·902	315. 47. 12·71	82·5	236·8	127·0	310·8	76·78	..	..	..	..	315. 48. 29·49	102. 18. 26·97	26
6·462	7·354	6·940	6·695	4. 39. 25·52	81·9	238·6	123·9	313·2	76·91	29·88	73·0	66·6	1. 15·55	4. 39. 26·88	53. 27. 29·58	27
6·091	6·771	6·560	6·759	112. 54. 13·26	89·2	245·6	128·7	317·8	82·83	,,	,,	66·2	1. 19·51	112. 56. 55·60	54. 49. 59·14	28
4·106	4·806	4·682	4·730	160. 23. 59·75	88·4	248·5	128·5	322·2	84·41	..	..	..	..	160. 25. 24·16	102. 18. 27·70	29
1·270	2·020	1·913	1·800	315. 47. 10·21	82·0	241·1	123·2	315·6	77·98	..	..	..	..	315. 48. 28·19	102. 18. 28·27	30
4·463	5·256	5·121	4·776	11. 28. 9·72	77·3	238·4	119·8	311·3	74·21	29·86	70·5	64·7	59·54	11. 28. 24·39	46. 38. 32·07	31
4·101	4·630	4·667	4·619	105. 32. 54·26	88·4	249·7	130·0	321·2	84·83	,,	,,	64·3	1. 1·34	105. 35. 20·43	47. 28. 23·97	32
4·162	4·790	4·962	4·746	160. 24. 3·01	84·4	246·6	126·0	319·2	81·55	..	..	..	..	160. 25. 24·56	102. 18. 28·10	33
1·313	2·019	2·168	1·850	315. 47. 13·57	82·8	245·4	123·4	317·2	79·70	..	..	..	..	315. 48. 33·27	102. 18. 23·19	34
5·956	6·802	6·752	6·717	113. 4. 13·68	80·8	248·2	120·6	321·4	80·25	29·63	69·5	59·6	1. 20·38	113. 6. 54·31	54. 59. 57·85	35
3·837	4·735	4·576	4·154	1. 57. 47·31	79·7	246·0	120·0	319·5	78·81	,,	,,	59·3	1. 23·96	1. 57. 42·16	56. 9. 14·30	36
1·300	2·162	2·187	1·886	315. 47. 15·33	77·2	242·6	118·7	316·0	76·13	..	..	..	..	315. 48. 31·46	102. 18. 25·00	37
4·065	4·757	4·870	4·656	160. 23. 59·98	83·7	248·6	124·8	321·7	82·21	..	..	..	..	160. 25. 22·19	102. 18. 25·73	38
9·892	0·621	0·486	0·187	13. 50. 11·39	71·5	254·1	106·7	330·2	78·14	29·58	64·1	56·6	55·21	13. 50. 34·32	44. 16. 22·14	39
2·088	2·683	2·693	2·755	103. 46. 38·81	75·7	260·1	106·2	334·2	81·56	,,	,,	55·4	58·16	103. 48. 58·53	45. 42. 2·07	40
4·048	4·785	4·874	4·801	160. 24. 1·53	72·1	255·6	106·2	332·6	79·13	..	..	..	..	160. 25. 20·66	102. 18. 24·20	41
1·223	2·243	2·266	2·101	315. 47. 18·20	73·5	253·8	107·9	330·7	78·99	..	..	..	..	315. 48. 37·19	102. 18. 19·27	42

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 6′. 49″·23 ; May 5, 58°. 6′. 52″·11 ; from May 6, 58°. 6′. 56″·46.

The Collimator is generally bisected by Wire X ; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is +1′.2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

39. The cross-wires of microscope A fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head, 9 in the integer representing −1.

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Observations of Zenith Distance, with the Altazimuth,

DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
June 8	JC	1	☽ L. L.	Right	31·4	34·8	37·9	41·8	..	48·4	..	−0·08	13. 36. 38·78	53·36	13. 37. 32·14
	JC	2	☽ L. L.	Left	21·4	24·9	28·4	32·0	35·2	38·8	..	−0·08	13. 40. 30·04	53·37	13. 41. 23·41
June 9	E	3	☽ U. L.	Right	42·9	47·6	52·4	58·1	3·2	8·4	..	+0·16	13. 18. 55·59	56·31	13. 19. 51·90
	E	4	☽ U. L.	Left	50·4	55·4	59·9	4·8	9·7	14·6	..	+0·16	13. 24. 2·63	56·32	13. 24. 58·95
	E	5	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	E	6	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
June 10	D	7	☽ U. L.	Right	19·1	30·1	42·5	54·1	5·7	17·4	+ 0·08	..	13. 11. 48·23	59·39	13. 12. 47·62
	D	8	☽ U. L.	Left	58·3	7·8	17·4	27·5	36·3	45·2	+ 0·04	..	13. 23. 22·12	59·41	13. 24. 21·53
	D	9	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	D	10	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
June 11	C	11	☽ U. L.	Left	20·6	28·4	36·8	45·3	53·5	2·4	− 0·02	−0·12	12. 7. 41·03	62·39	12. 8. 43·42
	C	12	☽ U. L.	Right	9·0	18·3	26·6	36·0	44·7	53·5	− 0·03	−0·12	12. 12. 31·20	62·40	12. 13. 33·60
	C	13	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	C	14	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
June 12	JC	15	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	16	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	17	☽ U. L.	Left	16·2	38·5	..	..	38·5	0·8	− 0·36	−0·08	13. 38. 8·06	5·65	13. 38. 13·71
	JC	18	☽ U. L.	Right	36·1	3·5	32·1	4·3	32·7	6·4	− 1·05	−0·08	13. 46. 48·05	5·67	13. 46. 53·72
June 13	E	19	☽ U. L.	Right	49·9	55·8	1·2	6·4	12·0	18·3	+ 0·01	+0·16	16. 52. 4·10	9·48	16. 52. 13·58
	E	20	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	E	21	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	E	22	☽ U. L.	Left	11·4	15·9	20·3	25·0	29·8	34·1	..	+0·16	17. 27. 22·91	9·56	17. 27. 32·47
June 14	K	23	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	K	24	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	K	25	☽ U. L.	Left	16·4	29·8	42·8	59·2	13·7	26·5	+ 0·12	+0·04	16. 29. 51·56	12·62	16. 30. 4·18
	K	26	☽ U. L.	Right	27·2	39·0	48·0	0·6	11·1	21·4	+ 0·06	+0·04	16. 43. 54·65	12·65	16. 44. 7·30
June 16	JC	27	☽ U. L.	Right	27·0	33·0	38·8	45·1	50·6	56·3	− 0·01	−0·08	15. 31. 41·71	18·16	15. 31. 59·87
	JC	28	☽ U. L.	Left	1·2	8·1	13·7	21·0	27·4	33·3	− 0·01	−0·08	15. 42. 17·36	18·18	1 5 42. 35·54
	JC	29	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	30	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
June 17	E	31	☽ U. L.	Left	36·8	45·0	52·6	1·0	7·9	15·1	− 0·02	+0·16	16. 54. 56·54	20·98	16. 55. 17·52
	E	32	☽ U. L.	Right	32·5	41·4	49·8	59·5	8·1	16·8	− 0·03	+0·16	17. 5. 54·81	21·00	17. 6. 15·81
	E	33	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	E	34	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
June 22	S	35	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	S	36	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	S	37	☽ L. L.	Left	36·4	39·2	42·0	45·3	48·4	51·4	..	+0·04	18. 16. 43·82	36·26	18. 17. 20·08
	S	38	☽ L. L.	Right	42·9	46·0	49·4	52·2	55·4	58·6	..	+0·04	18. 28. 50·79	36·29	18. 29. 27·08
June 24	JC	39	☽ L. L.	Right	8·6	11·2	14·4	17·4	20·1	23·0	..	−0·08	19. 32. 15·70	42·30	19. 32. 58·00
	JC	40	☽ L. L.	Left	30·3	33·4	35·8	38·6	41·4	44·7	..	−0·08	19. 40. 37·29	42·33	19. 41. 19·62
	JC	41	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	42	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·7 of A, to 7ʳ·9 of B, to 7ʳ·8 of C, and to 7ʳ·8 of D.

Correction for Runs of Microscopes for 100″ + 0″·52.

17. Very cloudy.

25. Very tremulous.

31. The clock-time at the first wire has been also used in a transit of ε Herculis observed with the Transit Circle.

40. Cloudy; limb diffused.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
											Interior.	Exterior.				
A	B	C	D		E	F	G	H								
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
2·272	1·861	2·016	2·073	115. 26. 11·97	79·8	267·0	108·2	341·4	86·60	30·00	60·0	55·4	1. 29·70	115. 29. 8·27	57. 22. 2·30	1
3·703	3·732	3·501	2·898	0. 17. 13·72	62·0	249·4	94·3	327·7	70·86	,,	,,	55·3	1. 31·35	0. 16. 53·23	57. 50. 12·74	2
7·539	7·176	6·958	7·248	111. 39. 39·60	82·5	254·7	118·5	324·2	82·49	30·18	65·3	60·6	1. 17·59	111. 42. 19·68	53. 35. 13·71	3
3·097	3·085	2·842	2·377	4. 6. 50·20	74·5	246·3	112·5	319·8	75·79	,,	,,	,,	1. 18·78	4. 6. 47·21	54. 0. 18·76	4
5·078	4·812	4·848	4·812	160. 24. 11·53	77·8	248·5	117·0	320·7	78·51	..	..	..	..	160. 25. 30·04	102. 18. 24·07	5
2·188	2·007	2·030	1·966	315. 47. 21·73	78·7	248·7	118·5	321·4	79·34	..	..	..	..	315. 48. 41·07	102. 18. 24·90	6
2·181	1·731	1·612	1·751	112. 26. 10·38	84·6	234·0	128·0	303·2	74·95	30·24	73·2	69·3	1. 18·59	112. 28. 43·92	54. 21. 37·95	7
4·161	4·206	3·740	3·214	3. 17. 28·09	90·0	239·6	136·3	312·0	81·98	,,	,,	68·9	1. 20·02	3. 17. 30·05	54. 49. 35·92	8
2·269	1·998	1·957	1·884	315. 47. 20·95	83·7	234·9	127·1	306·0	75·44	..	..	..	..	315. 48. 36·39	102. 18. 29·58	9
5·142	4·775	4·845	4·793	160. 24. 11·59	91·0	245·6	133·5	314·5	83·66	..	..	..	..	160. 25. 35·25	102. 18. 29·28	10
2·536	2·429	2·078	1·714	358. 46. 24·66	100·5	246·2	147·0	316·0	89·93	30·16	75·5	72·2	1. 34·16	358. 46. 20·43	59. 20. 45·54	11
2·061	1·582	1·504	1·700	117. 11. 6·24	82·9	229·4	129·5	298·6	72·61	,,	,,	71·8	1. 33·37	117. 13. 52·22	59. 6. 46·25	12
5·395	5·010	5·018	5·024	160. 24. 20·22	93·5	238·2	142·5	310·0	83·56	..	..	..	..	160. 25. 43·78	102. 18. 37·81	13
2·007	1·820	1·800	1·654	315. 47. 12·93	86·6	231·9	136·0	304·0	77·13	..	..	..	..	315. 48. 30·06	102. 18. 35·91	14
2·285	1·963	1·963	1·819	315. 47. 20·20	84·2	229·7	128·8	300·7	73·36	..	..	..	..	315. 48. 33·56	102. 18. 32·41	15
5·254	4·868	4·864	4·872	160. 24. 14·51	95·8	240·3	140·6	310·5	84·31	..	..	..	..	160. 25. 38·82	102. 18. 32·85	16
6·455	6·350	6·096	5·723	356. 28. 58·24	92·0	242·8	139·7	315·0	84·88	30·05	74·5	65·4	1. 44·32	356. 28. 38·80	61. 38. 27·17	17
6·052	5·713	5·651	5·723	119. 33. 43·71	82·7	234·6	129·2	305·0	75·38	,,	,,	,,	1. 43·68	119. 36. 42·77	61. 29. 36·80	18
3·208	2·834	2·953	3·018	127. 11. 56·17	77·5	259·6	111·5	334·0	83·16	29·90	62·5	56·3	2. 29·04	127. 15. 48·37	69. 8. 43·56	19
2·194	1·988	2·037	1·941	315. 47. 21·43	74·5	255·8	109·7	331·5	80·39	..	..	..	..	315. 48. 41·82	102. 18. 22·99	20
5·065	4·792	4·854	4·885	160. 24. 11·97	69·5	249·4	105·0	325·2	74·78	..	..	..	..	160. 25. 26·75	102. 18. 21·94	21
2·751	2·572	2·590	2·376	346. 1. 39·46	66·7	245·6	102·5	321·0	71·46	29·88	,,	56·6	2. 55·07	345. 59. 55·85	72. 7. 8·96	22
2·141	1·904	2·032	1·869	315. 47. 19·37	74·4	262·0	108·8	339·4	83·65	..	..	..	..	315. 48. 43·02	102. 18. 21·79	23
5·101	4·794	4·939	4·910	160. 24. 13·41	64·0	251·4	98·9	329·5	73·46	..	..	..	..	160. 25. 26·87	102. 18. 22·06	24
4·816	4·769	4·619	4·251	350. 12. 58·38	58·9	251·6	93·1	330·9	71·14	29·80	60·2	49·9	2. 21·51	350. 11. 48·01	67. 55. 16·80	25
3·086	2·495	2·708	2·809	126. 26. 47·36	73·9	266·8	106·1	342·5	84·84	29·81	,,	,,	2. 24·90	126. 30. 37·10	68. 23. 32·29	26
6·186	5·756	5·996	6·017	132. 43. 51·59	65·6	262·8	94·8	340·3	78·38	30·06	57·0	49·6	3. 29·51	132. 48. 39·48	74. 41. 34·67	27
1·449	1·223	1·366	1·024	344. 10. 48·95	67·6	263·8	97·7	342·2	80·33	,,	,,	50·5	3. 19·56	344. 8. 49·72	73. 58. 15·09	28
2·172	1·923	2·113	1·897	315. 47. 20·92	72·8	267·0	103·8	343·7	84·33	..	..	..	..	315. 48. 45·25	102. 18. 19·56	29
5·092	4·883	4·962	4·904	160. 24. 14·34	61·2	254·8	93·0	332·2	72·80	..	..	..	..	160. 25. 27·14	102. 18. 22·33	30
2·625	2·488	2·408	2·165	345. 6. 33·64	66·8	266·8	95·5	344·7	80·96	30·09	56·0	48·2	3. 9·44	345. 4. 45·16	73. 2. 19·65	31
2·958	2·484	2·638	2·774	130. 31. 44·96	64·7	264·2	93·5	340·7	78·29	,,	,,	49·0	3. 2·94	130. 36. 6·19	72. 29. 1·38	32
4·977	4·626	4·824	4·712	160. 24. 7·57	62·6	261·2	93·5	336·8	76·03	..	..	..	..	160. 25. 23·60	102. 18. 18·79	33
2·257	2·102	2·194	2·082	315. 47. 26·02	67·4	264·8	99·0	340·7	80·48	..	..	..	..	315. 48. 46·50	102. 18. 18·31	34
2·229	2·193	2·269	2·081	315. 47. 27·34	67·9	253·1	101·3	330·2	75·64	..	..	..	..	315. 48. 42·98	102. 18. 21·83	35
4·905	4·598	4·753	4·789	160. 24. 6·65	73·5	255·2	107·8	331·9	79·61	..	..	..	..	160. 25. 26·26	102. 18. 21·45	36
4·108	4·069	4·058	3·771	336. 47. 34·72	80·2	262·1	116·1	341·5	87·49	30·02	..	51·4	6. 3·14	336. 42. 59·07	81. 24. 5·74	37
3·388	3·025	3·123	3·244	137. 47. 3·58	63·2	245·8	98·2	323·5	70·18	,,	..	51·2	5. 9·26	137. 53. 23·02	79. 46. 18·21	38
1·754	1·318	1·498	1·553	136. 20. 59·23	64·2	252·8	95·5	329·3	72·96	30·04	60·0	51·7	4. 32·53	136. 26. 44·72	78. 19. 39·91	39
4·839	4·644	4·736	4·512	341. 3. 1·08	72·8	262·2	104·3	338·5	81·96	,,	,,	51·3	4. 7·70	341. 0. 15·52	77. 6. 49·47	40
4·841	4·488	4·693	4·679	160. 24. 3·33	72·8	262·4	103·4	337·5	81·53	..	..	..	..	160. 25. 24·86	102. 18. 20·05	41
2·355	2·154	2·313	2·106	315. 47. 28·87	67·2	257·0	99·3	333·0	74·63	..	..	..	..	315. 48. 43·50	102. 18. 21·31	42

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 7′. 5″·97; from June 13, 58°. 7′. 4″·81.

The Collimator is generally bisected by Wire X; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′. 2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82 to 85° Z.D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85° the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

1, 17. The corrections applied in forming Circle Reading for mean of wires observed are, − 7″·55 and + 0″·21 respectively.

18. The reading for F was set down 324ᵈ·6.

41. The reading for F was set down 267ᵈ·4.

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OBSERVATIONS OF ZENITH DISTANCE, WITH THE ALTAZIMUTH,

DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
July 7	C	1	α Aquilæ	Left	30·5	33·4	36·0	38·8	41·6	44·4	..	−0·12	16. 1. 37·33	57·03	16. 2. 34·36
	C	2	α Aquilæ	Right	53·3	56·3	59·2	2·2	5·2	8·1	..	−0·12	16. 8. 0·60	57·03	16. 8. 57·63
	C	3	Arcturus	Left	4·2	7·4	11·0	14·7	18·0	21·4	..	−0·12	16. 14. 12·66	57·03	16. 15. 9·69
	C	4	Arcturus	Right	46·8	50·6	53·6	57·1	0·4	3·9	..	−0·12	16. 18. 55·28	57·03	16. 19. 52·31
July 8	E	5	α Aquilæ	Left	46·4	49·1	52·1	54·9	57·8	0·9	..	+0·16	16. 13. 53·69	57·81	16. 14. 51·50
	E	6	α Aquilæ	Right	45·8	48·4	51·6	54·7	57·7	0·4	..	+0·16	16. 18. 53·26	57·82	16. 19. 51·08
	E	7	☽ L. L.	Left	33·7	37·0	40·3	43·8	47·1	50·7	..	+0·16	16. 28. 42·26	57·82	16. 29. 40·08
	E	8	☽ L. L.	Right	8·8	12·0	15·4	18·7	21·8	25·1	..	+0·16	16. 32. 17·13	57·82	16. 33. 14·95
	E	9	τ Boötis	Left	54·5	57·3	0·2	3·2	6·0	8·8	..	+0·16	16. 54. 1·83	57·84	16. 54. 59·67
	E	10	τ Boötis	Right	50·5	53·2	56·0	59·1	2·1	4·9	..	+0·16	16. 58. 57·79	57·84	16. 59. 55·63
	E	11	η Boötis	Left	21·2	24·0	27·0	30·0	32·6	35·4	..	+0·16	17. 7. 28·53	57·85	17. 8. 26·38
	E	12	η Boötis	Right	46·2	49·0	51·8	54·4	57·3	0·3	..	+0·16	17. 11. 53·33	57·85	17. 12. 51·18
	E	13	α Delphini	Left	7·0	9·5	12·2	15·7	18·6	21·6	..	+0·16	17. 22. 14·26	57·86	17. 23. 12·12
	E	14	α Delphini	Left	0·2	3·3	5·8	9·2	12·1	15·3	..	+0·16	17. 27. 7·81	57·86	17. 28. 5·67
	E	15	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	E	16	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
July 9	D	17	☽ U. L.	Right	39·3	46·6	53·7	1·7	8·5	15·9	+ 0·02	..	15. 8. 57·64	58·84	15. 9. 56·48
	D	18	☽ U. L.	Left	21·8	28·7	35·0	42·0	47·8	54·4	+ 0·01	..	15. 20. 38·29	58·85	15. 21. 37·14
	D	19	α Aquilæ	Right	43·7	46·4	49·1	51·9	54·6	57·4	..	..	15. 41. 50·52	58·87	15. 42. 49·39
	D	20	α Aquilæ	Left	43·9	47·0	49·6	52·7	55·6	58·2	..	..	15. 45. 51·17	58·87	15. 46. 50·04
	D	21	η Boötis	Right	32·8	36·3	39·7	43·4	47·0	50·4	..	..	15. 54. 41·60	58·87	15. 55. 40·47
	D	22	η Boötis	Left	21·2	24·4	27·7	31·3	34·4	37·7	..	..	16. 3. 29·45	58·88	16. 4. 28·33
	D	23	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	D	24	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
July 10	JC	25	☽ U. L.....	Left	3·2	8·7	14·7	21·6	27·6	33·2	+ 0·01	−0·08	16. 22. 18·10	60·05	16. 23. 18·15
	JC	26	☽ U. L	Right	49·3	55·7	1·0	7·4	13·6	19·3	+ 0·01	−0·08	16. 26. 4·31	60·05	16. 27. 4·36
	JC	27	Arcturus	Right	45·6	48·9	51·5	55·2	58·0	1·0	..	−0·08	16. 57. 53·29	60·08	16. 58. 53·37
	JC	28	Arcturus	Left	57·0	0·3	3·2	6·4	9·4	12·9	..	−0·08	17. 2. 4·79	60·08	17. 3. 4·87
	JC	29	α Aquilæ	Left	40·4	44·3	47·5	51·4	54·8	18·1	..	−0·08	17. 7. 49·34	60·08	17. 8. 49·42
	JC	30	α Aquilæ	Right	36·9	40·5	43·8	47·5	51·0	54·3	..	−0·08	17. 11. 45·59	60·08	17. 12. 45·67
	JC	31	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	32	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
July 11	C	33	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	34	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	35	☽ U. L.....	Right	42·0	49·0	55·6	3·0	9·7	17·0	+ 0·01	−0·12	17. 0. 59·27	61·20	17. 2. 0·47
	C	36	☽ U. L.....	Left	4·4	10·8	17·4	24·0	30·4	36·4	+ 0·01	−0·12	17. 10. 20·46	61·21	17. 11. 21·67
July 12	E	37	☽ U. L.	Right	14·7	23·3	32·0	41·4	50·3	58·9	+ 0·03	+0·16	17. 32. 36·96	62·19	17. 33. 39·15
	E	38	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	39	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
July 13	D	40	☽ U. L.	Right	38·1	45·0	51·6	58·2	4·7	10·9	− 0·01	..	15. 28. 54·74	63·34	15. 29. 58·08
	D	41	☽ U. L.	Left	36·3	43·4	50·2	58·2	5·0	12·9	− 0·01	..	15. 38. 54·33	63·35	15. 39. 57·68
	D	42	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	D	43	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
July 14	JC	44	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	45	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7″·7 of A, to 7″·9 of B, to 7″·8 of C, and to 7″·8 of D.

Correction for Runs of Microscopes for 100″, +0″·69.

35. Very faint.

36. Cloudy.

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Readings of Microscopes of Vertical Circle. A	B	C	D	Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle. E	F	G	H	Concluded Level Indication.	Barometer.	Thermometer. Interior.	Exterior.	Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
2·365	2·232	2·230	1·804	355. 51. 23·60	80·4	261·0	118·4	337·5	86·83	30·24	65·5	..	1. 50·14	355. 51. 0·29	62. 16. 5·27	1
1·221	0·685	0·804	0·980	119. 25. 35·80	63·9	244·8	100·0	320·0	69·68	,,	,,	..	1. 46·05	119. 28. 31·53	61. 21. 25·97	2
2·850	2·554	2·501	2·182	18. 6. 37·71	67·0	248·0	103·4	324·0	73·10	,,	,,	..	48·80	18. 7. 2·01	40. 0. 3·55	3
6·436	5·830	5·700	5·989	98. 38. 52·02	78·5	259·6	114·0	335·0	84·28	,,	,,	..	49·78	98. 41. 6·08	40. 34. 0·52	4
1·345	1·178	1·086	0·761	357. 35. 42·33	85·6	263·2	122·5	336·5	89·46	30·25	64·5	55·2	1. 42·42	357. 35. 29·37	60. 31. 36·19	5
6·415	6·103	6·127	6·314	117. 54. 1·70	67·0	244·7	104·8	316·7	70·81	,,	,,	,,	1. 39·60	117. 56. 52·11	59. 49. 46·55	6
3·908	3·845	3·763	3·427	346. 47. 24·69	69·0	247·3	107·3	320·3	73·49	,,	,,	54·7	2. 50·31	346. 45. 47·87	71. 21. 17·69	7
1·726	1·237	1·416	1·557	129. 50. 57·52	80·6	259·0	116·8	331·0	84·35	,,	,,	,,	2. 54·71	129. 55. 16·58	71. 48. 11·02	8
7·236	7·314	6·950	6·548	7. 34. 31·56	68·6	248·4	107·0	321·7	73·93	,,	,,	54·4	1. 10·61	7. 34. 34·88	50. 32. 30·68	9
7·475	7·136	7·136	7·287	109. 19. 41·16	79·8	259·8	116·7	331·7	84·51	,,	,,	,,	1. 12·42	109. 22. 18·09	51. 15. 12·53	10
7·236	6·893	6·880	7·057	108. 44. 31·78	77·7	258·2	114·8	330·6	82·83	,,	,,	,,	1. 10·92	108. 47. 5·53	50. 39. 59·97	11
5·356	5·244	5·103	4·765	6. 48. 18·21	69·3	250·4	107·3	324·4	75·36	,,	,,	,,	1. 12·57	6. 48. 21·00	51. 18. 44·56	12
7·284	6·971	6·969	7·025	110. 14. 33·56	66·4	247·7	103·7	320·6	72·11	,,	62·5	52·7	1. 15·07	110. 17. 0·74	52. 9. 55·18	13
4·772	4·776	4·490	3·997	6. 37. 54·62	77·3	260·3	116·7	333·2	84·39	,,	,,	,,	1. 13·26	6. 38. 5·75	51. 28. 59·81	14
2·119	1·902	1·980	1·872	315. 47. 18·75	70·0	251·7	106·5	324·7	75·74	..	..	..	..	315. 48. 34·49	102. 18. 31·07	15
5·072	4·750	4·872	4·856	160. 24. 11·85	76·7	258·6	113·0	331·6	82·48	..	..	..	..	160. 25. 34·33	102. 18. 28·77	16
7·555	7·198	7·153	7·351	120. 19. 43·33	83·2	254·2	120·5	327·2	83·78	30·23	66·6	60·0	1. 48·87	120. 22. 55·98	62. 15. 50·42	17
7·561	7·547	7·378	6·951	355. 9. 45·01	71·3	243·2	111·1	318·8	73·61	,,	,,	59·1	1. 52·35	355. 9. 6·27	62. 57. 59·29	18
6·821	6·870	6·688	6·173	352. 59. 17·07	82·5	253·8	122·2	330·0	84·63	,,	,,	58·0	2. 3·86	352. 58. 37·84	65. 8. 27·72	19
3·150	2·612	2·713	2·928	122. 36. 50·48	72·2	244·3	111·0	319·8	74·33	,,	,,	57·8	2. 0·67	122. 40. 5·48	64. 32. 59·92	20
3·615	3·350	3·290	2·975	17. 12. 8·14	69·9	241·2	108·0	316·9	71·51	,,	,,	57·5	50·07	17. 12. 29·58	40. 54. 35·98	21
5·416	4·776	4·668	4·960	100. 3. 11·98	85·7	255·6	123·8	331·0	86·53	,,	,,	57·0	52·02	100. 5. 30·53	41. 58. 24·97	22
1·929	1·761	1·908	1·741	315. 47. 13·62	80·5	249·2	119·7	326·5	81·49	..	..	..	..	315. 48. 35·11	102. 18. 30·45	23
5·232	4·988	5·128	5·078	160. 24. 20·33	76·0	245·2	112·0	319·8	75·75	..	..	..	..	160. 25. 36·08	102. 18. 30·52	24
4·641	4·526	4·457	4·089	351. 2. 51·51	73·3	240·0	114·0	313·8	72·78	30·15	68·0	56·8	2. 15·56	351. 1. 48·73	67. 5. 16·83	25
6·979	6·642	6·791	6·803	125. 24. 23·55	87·0	253·5	126·2	326·5	85·81	,,	,,	,,	2. 17·28	125. 28. 6·64	67. 21. 1·08	26
5·554	5·039	5·047	5·234	103. 43. 22·19	83·8	254·0	125·2	325·7	84·68	,,	,,	56·3	59·05	103. 45. 45·92	45. 38. 40·36	27
5·563	5·411	5·260	4·904	11. 53. 24·68	71·6	241·8	113·2	315·0	72·90	,,	,,	56·2	1. 0·27	11. 53. 37·31	46. 13. 28·25	28
7·608	7·530	7·381	6·972	4. 39. 45·56	79·0	249·4	120·8	322·6	80·45	,,	,,	56·1	1. 17·85	4. 39. 48·16	53. 27. 17·40	29
5·919	5·452	5·460	5·656	111. 3. 37·78	75·2	246·2	115·8	318·0	76·30	,,	,,	,,	1. 16·53	111. 6. 10·61	52. 59. 5·05	30
1·982	1·801	1·946	1·728	315. 47. 14·75	77·3	248·6	119·2	322·0	79·28	..	..	..	..	315. 48. 34·03	102. 18. 31·53	31
5·256	4·909	5·073	5·046	160. 24. 18·97	76·8	248·0	117·8	322·0	78·65	..	..	..	..	160. 25. 37·62	102. 18. 32·06	32
5·260	4·908	5·081	5·037	160. 24. 18·99	75·6	250·0	114·5	324·8	78·73	..	..	..	..	160. 25. 37·72	102. 18. 32·16	33
1·960	1·750	1·920	1·710	315. 47. 13·63	77·8	250·2	116·5	325·6	80·03	..	..	..	..	315. 48. 33·66	102. 18. 31·90	34
2·690	2·180	2·375	2·474	127. 11. 34·18	79·8	256·9	114·8	329·0	82·63	29·99	64·8	57·0	2. 29·22	127. 15. 26·03	69. 8. 20·47	35
0·400	0·274	0·326	9·890	348. 25. 8·63	67·8	246·0	106·2	321·7	72·93	,,	,,	56·9	2. 33·83	348. 23. 47·73	69. 43. 17·83	36
7·237	6·854	6·975	7·108	128. 19. 32·84	85·2	254·8	124·7	326·7	85·36	29·78	66·5	59·5	2. 36·49	128. 23. 34·69	70. 16. 29·44	37
5·200	5·009	5·086	5·037	160. 24. 19·41	74·8	245·0	116·0	316·7	75·63	..	..	..	..	160. 25. 35·04	102. 18. 29·79	38
1·898	1·750	1·831	1·725	315. 47. 12·32	82·5	252·6	121·7	323·0	82·46	..	..	..	..	315. 48. 34·78	102. 18. 30·47	39
5·883	5·502	5·617	5·695	131. 23. 39·82	78·2	250·3	113·0	323·5	78·76	29·69	66·3	61·7	3. 5·32	131. 28. 3·90	73. 20. 58·65	40
6·263	6·235	6·210	5·822	345. 23. 57·52	80·0	251·1	117·5	326·7	81·34	,,	,,	61·1	2. 58·86	345. 22. 20·00	72. 44. 45·25	41
1·985	1·782	1·943	1·775	315. 47. 15·04	79·6	251·8	115·5	327·0	80·98	..	..	..	..	315. 48. 36·02	102. 18. 29·23	42
5·151	4·872	5·008	5·003	160. 24. 16·54	76·0	247·4	111·1	322·0	76·63	..	..	..	..	160. 25. 33·17	102. 18. 27·92	43
5·166	4·847	5·034	5·023	160. 24. 16·89	74·3	255·0	108·7	329·2	79·31	..	..	..	..	160. 25. 36·20	102. 18. 30·95	44
1·962	1·793	1·939	1·744	315. 47. 14·57	74·8	253·0	109·8	329·6	79·30	..	..	..	..	315. 48. 33·87	102. 18. 31·38	45

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 7′. 5″·56; from July 12, 58°. 7′. 5″·25.

The Collimator is generally bisected by Wire X; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′. 2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

21. The reading for G was set down 98^{d}·0.

36. The cross-wires of microscope *d* fell on the negative side of the micrometer-zero. The fractional part of the reading was taken from the micrometer-head, 9 in the integer representing −1.

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Observations of Zenith Distance with the Altazimuth,

Day.	Observer.	No. for Reference.	Name of Object.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
Aug. 8	L	1	Collimator . . .	Right	..	..	..	..	..	..	..	..	....	..	....
	L	2	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
													....	..	....
Aug. 9	C	3	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	4	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	5	☽ U. L.	Right	8·4	21·0	33·1	46·2	59·1	11·1	+ 0·09	−0·12	17. 45. 39·79	39·28	17. 46. 19·07
	C	6	☽ U. L.	Left	55·4	7·2	18·7	29·6	41·1	53·4	+ 0·07	−0·12	17. 50. 24·18	39·28	17. 51. 5·46
Aug. 10	E	7	☽ U. L.	Left	36·7	49·4	2·0	16·5	30·1	43·4	− 0·08	+0·16	16. 58. 9·76	39·95	16. 58. 49·71
	E	8	☽ U. L.	Right	57·2	12·4	26·8	42·9	58·6	13·8	− 0·15	+0·16	17. 3. 35·29	39·95	17. 4. 15·24
	E	9	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	E	10	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Aug. 11	JC	11	☽ U. L.	Left	56·8	3·4	9·6	16·0	22·2	28·3	−0·01	−0·08	16. 49. 12·63	40·73	16. 49. 53·36
	JC	12	☽ U. L.	Right	6·5	12·2	18·6	25·6	31·7	38·5	−0·01	−0·08	16. 54. 22·09	40·73	16. 55. 2·82
	JC	13	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	14	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
													17. 6. 27·40	41·59	17. 7. 8·99
Aug. 12	D	15	☽ U. L.	Left	15·2	20·2	24·8	29·6	34·9	39·7	..	..	17. 16. 16·60	41·60	17. 16. 58·20
	D	16	☽ U. L.	Right	3·7	8·7	13·9	19·1	24·6	29·6	..	..	....	..	....
	D	17	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	18	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
													....	..	....
Aug. 13	C	19	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	20	Collimator	Right	..	..	..	..	..	..	..	..	18. 35. 21·24	42·39	18. 36. 3·63
	C	21	☽ U. L.	Left	5·8	11·8	17·9	24·8	30·9	37·1	−0·01	−0·13	18. 42. 46·83	42·39	18. 43. 29·22
	C	22	☽ U. L.	Right	31·0	37·2	43·4	50·0	56·9	3·3	−0·01	−0·13	....	..	....
													....	..	....
Aug. 14	D	23	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	24	Collimator	Left	..	..	..	..	..	..	..	..	17. 38. 26·02	43·35	17. 39. 9·37
	D	25	☽ U. L.	Left	17·0	20·8	24·0	27·9	31·4	35·0	..	..	17. 56. 42·42	43·36	17. 57. 25·78
	D	26	☽ U. L.	Right	33·3	36·7	40·4	44·4	47·9	51·8	..	..	....	..	....
													18. 57. 8·04	44·59	18. 57. 52·63
Aug. 15	E	27	☽ U. L.	Right	58·6	2·0	5·8	10·1	13·6	17·2	..	+0·16	19. 6. 57·78	44·60	19. 7. 42·38
	E	28	☽ U. L.	Left	47·7	51·5	55·8	59·8	3·5	7·4	..	+0·16	....	..	....
	E	29	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	30	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
													18. 59. 34·70	46·27	19. 0. 20·97
Aug. 16	JC	31	☽ L. L.	Left	27·0	30·2	33·0	36·2	39·6	42·7	..	−0·08	19. 6. 46·25	46·28	19. 7. 32·53
	JC	32	☽ L. L.	Right	38·4	41·4	44·5	47·9	51·2	54·6	..	−0·08	....	..	....
	JC	33	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	34	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
													23. 54. 1·38	50·47	23. 54. 51·85
Aug. 18	S	35	☽ U. L.	Left	32·6	43·0	55·4	6·4	19·8	31·4	−0·09	+0·04	0. 2. 10·75	50·48	0. 3. 1·23
	S	36	☽ U. L.	Right	35·0	48·4	2·6	19·4	33·1	46·8	−0·17	+0·04	....	..	....
													21. 31. 15·37	54·29	21. 32. 9·66
Aug. 20	JC	37	☽ L. L.	Left	8·5	11·2	14·0	17·0	19·8	22·2	..	−0·08	21. 34. 55·47	54·30	21. 35. 49·77
	JC	38	☽ L. L.	Right	48·6	51·2	54·2	57·0	59·8	2·5	..	−0·08	....	..	....
	JC	39	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	40	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·7 of A, to 7ʳ·9 of B, to 7ʳ·8 of C, and to 7ʳ·8 of D.

Correction for Runs of Microscopes for 100″, +0″·51.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
A	B	C	D		E	F	G	H			Interior.	Exterior				
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
5·069	4·716	4·916	4·856	160. 24. 11·59	82·7	251·6	119·4	325·3	82·26	..	..	..	..	160. 25. 33·85	102. 18. 28·13	1
2·258	1·996	2·165	2·068	315. 47. 24·59	77·7	245·4	115·3	319·3	76·94	..	..	..	..	315. 48. 41·53	102. 18. 24·19	2
2·143	1·950	2·069	1·901	315. 47. 20·49	78·6	243·9	118·6	317·0	77·03	..	..	..	..	315. 48. 37·52	102. 18. 28·20	3
5·081	4·719	4·984	4·910	160. 24. 12·92	83·5	248·0	122·4	321·4	81·33	..	..	..	..	160. 25. 34·25	102. 18. 28·53	4
4·437	3·930	4·130	4·200	128. 22. 41·45	79·4	247·3	118·9	321·0	79·16	29·91	68·0	60·4	2. 37·32	128. 26. 37·93	70. 19. 32·21	5
6·470	6·385	6·379	5·973	347. 39. 3·64	78·0	246·1	119·0	321·0	78·53	,,	,,	60·0	2. 38·85	347. 37. 43·32	70. 29. 22·40	6
7·737	7·729	7·631	7·367	346. 59. 54·43	84·8	246·7	127·0	318·5	81·76	30·11	70·5	63·8	2. 44·48	346. 58. 31·71	71. 8. 34·01	7
3·645	3·242	3·318	3·432	129. 2. 11·85	82·7	244·0	124·5	315·3	79·14	,,	,,	,,	2. 43·05	129. 6. 14·04	70. 59. 8·32	8
1·992	1·867	1·914	1·814	315. 47. 15·88	83·5	247·0	123·5	320·6	81·16	..	..	..	..	315. 48. 37·04	102. 18. 28·68	9
5·165	4·940	5·040	5·028	160. 24. 17·53	77·8	241·4	117·7	314·2	75·28	..	..	..	..	160. 25. 32·81	102. 18. 27·09	10
1·569	1·282	1·268	1·131	343. 55. 50·78	91·8	248·0	134·3	317·7	85·46	30·12	72·0	67·5	3. 16·25	343. 53. 59·99	74. 13. 5·73	11
1·232	0·730	0·788	0·921	131. 55. 35·55	83·9	240·0	126·8	310·0	77·68	,,	,,	67·3	3. 12·17	132. 0. 5·40	73. 52. 59·68	12
5·243	4·912	4·998	5·007	160. 24. 17·42	84·3	240·2	127·3	310·8	78·16	..	..	..	..	160. 25. 35·58	102. 18. 29·86	13
2·032	1·858	1·893	1·764	315. 47. 15·49	86·2	242·0	130·7	314·0	80·73	..	..	..	..	315. 48. 36·22	102. 18. 29·50	14
1·541	1·387	1·325	1·039	342. 0. 51·17	102·8	246·2	150·5	316·8	91·58	30·08	76·8	69·7	3. 42·31	341. 58. 40·44	76. 8. 25·28	15
3·580	3·125	3·150	3·280	133. 22. 7·01	86·0	228·5	131·2	298·0	73·43	,,	,,	68·9	3. 30·36	133. 26. 50·80	75. 19. 45·08	16
5·167	4·881	4·963	4·940	160. 24. 15·40	95·5	236·8	142·2	307·6	83·03	..	..	..	..	160. 25. 38·43	102. 18. 32·71	17
2·100	1·851	1·855	1·801	315. 47. 16·09	90·3	231·0	138·2	303·0	78·13	..	..	..	..	315. 48. 34·22	102. 18. 31·50	18
2·140	1·900	1·951	1·812	315. 47. 17·97	87·3	229·0	137·6	300·9	76·21	..	..	..	..	315. 48. 34·18	102. 18. 31·54	19
5·242	4·908	5·044	4·960	160. 24. 17·36	92·4	234·0	142·4	305·9	81·18	..	..	..	..	160. 25. 38·54	102. 18. 32·82	20
2·389	2·243	2·234	1·890	346. 21. 24·65	96·1	238·4	147·0	310·6	85·53	29·99	76·8	68·7	2. 48·21	346. 20. 1·97	71. 47. 3·75	21
1·964	1·386	1·571	1·680	129. 21. 3·87	86·5	228·9	135·5	298·8	74·94	,,	,,	68·5	2. 43·71	129. 25. 2·52	71. 17. 56·80	22
5·282	4·935	4·890	4·953	160. 24. 16·45	108·3	231·2	162·5	294·7	86·69	..	..	..	..	160. 25. 43·14	102. 18. 37·42	23
2·093	1·892	1·790	1·691	315. 47. 14·73	98·0	220·8	154·0	285·8	77·15	..	..	..	..	315. 48. 31·88	102. 18. 33·84	24
4·300	4·092	3·981	3·822	338. 17. 36·54	112·0	234·3	168·5	301·0	91·46	29·89	84·0	77·4	4. 54·80	338. 14. 13·20	79. 52. 52·52	25
5·636	5·259	5·241	5·365	135. 48. 27·85	90·7	213·6	144·0	277·0	68·83	,,	83·5	76·9	4. 6·37	135. 53. 43·05	77. 46. 37·33	26
4·292	3·932	4·117	4·236	132. 2. 40·26	79·7	257·0	113·5	330·4	82·66	29·62	64·8	59·4	3. 13·50	132. 7. 16·42	74. 0. 10·70	27
4·708	4·664	4·666	4·348	345. 12. 57·71	74·0	250·4	109·7	323·6	76·93	,,	,,	59·3	3. 1·10	345. 11. 13·54	72. 55. 52·18	28
5·084	4·834	5·053	4·983	160. 24. 15·42	67·7	245·3	103·5	318·0	71·14	..	..	..	..	160. 25. 26·56	102. 18. 20·84	29
1·978	1·803	1·931	1·863	315. 47. 15·77	83·0	260·0	118·7	331·7	85·86	..	..	..	..	315. 48. 41·63	102. 18. 24·09	30
3·726	3·601	3·686	3·441	340. 57. 19·72	71·6	254·0	105·8	329·7	77·78	29·83	63·0	55·7	4. 5·53	340. 54. 31·97	77. 12. 33·75	31
5·750	5·337	5·557	5·659	134. 18. 35·60	72·8	254·0	106·3	328·8	77·98	,,	,,	55·6	3. 49·11	134. 23. 42·69	76. 16. 36·97	32
5·141	4·809	5·021	5·033	160. 24. 15·90	66·0	248·8	101·2	324·3	73·58	..	..	..	..	160. 25. 28·48	102. 18. 22·76	33
2·012	1·811	1·983	1·832	315. 47. 16·39	79·7	261·8	113·7	336·2	85·36	..	..	..	..	315. 48. 41·75	102. 18. 23·97	34
1·959	2·094	1·679	1·174	6. 46. 6·74	74·3	253·5	110·5	328·2	79·14	30·03	..	57·9	1. 11·66	6. 46. 14·22	51. 20. 51·50	35
7·691	7·365	7·370	7·567	109. 9. 49·92	78·2	255·3	113·2	329·9	81·66	,,	..	,,	1. 11·05	109. 12. 22·63	51. 5. 16·91	36
0·714	0·491	0·574	0·253	346. 45. 19·67	73·4	252·2	109·7	326·6	77·98	29·90	65·5	57·5	2. 47·70	346. 43. 49·95	71. 23. 15·77	37
5·424	4·936	5·147	5·243	128. 53. 20·61	72·2	251·8	107·2	324·8	76·50	,,	,,	57·4	2. 42·68	128. 57. 19·79	70. 50. 14·07	38
2·050	1·817	2·003	1·844	315. 47. 17·12	80·0	261·3	110·8	336·2	84·58	..	..	..	..	315. 48. 41·70	102. 18. 24·02	39
5·082	4·731	4·996	4·979	160. 24. 13·82	67·8	249·0	102·2	326·4	73·85	..	..	..	..	160. 25. 27·67	102. 18. 21·95	40

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 7′. 5″·72.

The Collimator is generally bisected by Wire X; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′.2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

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Observations of Zenith Distance, with the Altazimuth,

DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
													(Hardy.)		
Sept. 12	D	1	☽ U. L.	Left	..	50·9	54·1	57·6	0·9	4·1	..	..	18. 52. 57·52	35·29	18. 53. 32·81
	D	2	☽ U. L.	Right	0·8	4·1	7·2	10·8	14·6	17·5	..	..	19. 2. 9·17	35·30	19. 2. 44·47
	D	3	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	D	4	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Sept. 13	E	5	☽ U. L.	Right	44·8	48·0	51·2	54·8	58·3	1·8	..	+0·16	20. 5. 53·31	37·03	20. 6. 30·34
	E	6	☽ L. L.	Right	0·4	3·4	6·4	10·1	13·7	17·7	..	+0·16	20. 10. 8·78	37·03	20. 10. 45·81
	E	7	☽ U. L.	Left	18·4	21·7	25·4	29·0	32·6	36·2	..	+0·16	20. 23. 27·38	37·05	20. 24. 4·43
	E	8	☽ L. L.	Left	48·5	52·2	55·7	59·8	3·2	6·9	..	+0·16	20. 27. 57·88	37·05	20. 28. 34·93
	E	9	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	E	10	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
													....	..	....
				Right	..	..	..	..	..	..	..	..	....	..	....
Sept. 14	C	11	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	12	Collimator	Left	49·0	51·8	54·8	58·1	1·1	4·2	..	−0·12	20. 38. 56·38	38·43	20. 39. 34·81
	C	13	☽ L. L.	Right	12·4	15·6	19·1	22·4	25·6	28·8	..	−0·12	20. 45. 20·53	38·44	20. 45. 58·97
	C	14	☽ L. L.	Left	10·9	14·0	16·9	20·0	22·7	25·4	..	+0·16	20. 52. 18·48	39·97	20. 52. 58·45
Sept. 15	E	15	☽ L. L.	Right	50·8	53·4	55·9	59·2	2·1	4·9	..	+0·16	21. 1. 57·88	39·99	21. 2. 37·87
	E	16	☽ L. L.	Right	..	..	..	..	..	..	..	..	....	..	....
	E	17	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	E	18	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
													....	..	....
				Right	..	..	..	..	..	..	..	..	....	..	....
Sept. 16	D	19	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	D	20	Collimator....	Left	5·2	8·0	10·6	13·4	16·2	18·9	..	..	20. 37. 12·05	41·78	20. 37. 53·83
	D	21	☽ L. L.	Right	57·9	0·4	3·1	6·1	8·7	11·1	..	..	20. 45. 4·55	41·79	20. 45. 46·34
	D	22	☽ L. L.	Right	..	..	..	..	..	..	..	..	....	..	....
													....	..	....
				Right	..	..	..	..	..	..	..	..	....	..	....
Sept. 17	JC	23	Collimator....	Left	6·1	11·6	16·4	21·8	26·1	30·8	..	−0·08	1. 24. 18·72	43·31	1. 25. 2·03
	JC	24	☽ L. L.	Right	35·9	41·8	47·0	52·6	57·9	3·1	− 0·01	−0·08	1. 31. 49·63	43·31	1. 32. 32·94
	JC	25	☽ L. L.	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	26	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
													....	..	....
				Right	..	..	..	..	..	..	..	..	....	..	....
Sept. 18	L	27	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	L	28	Collimator....	Left	..	..	..	..	..	..	..	−0·27	21. 16. 2·43	44·62	21. 16. 47·05
	L	29	☽ L. L.	Right	55·5	58·6	1·3	4·3	6·9	9·6	..	−0·27	21. 20. 20·80	44·63	21. 21. 5·43
	L	30	☽ L. L.	Left	14·4	16·8	19·6	22·3	25·4	27·9	..	+0·16	0. 18. 59·73	46·62	0. 19. 46·35
													....	..	....
Sept. 19	E	31	☽ L. L.	Left	52·8	55·3	58·1	1·0	3·8	6·4	..	..	....	..	....
	E	32	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	E	33	Collimator....	Right	..	..	..	..	..	..	..	+0·16	0. 51. 0·38	46·67	0. 51. 47·05
	E	34	☽ L. L.	Right	53·2	55·9	58·8	1·8	4·4	7·2	..	..	....	..	....
													....	..	....
				Left	..	..	..	..	..	..	..	..	....	..	....
Sept. 20	D	35	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	D	36	Collimator....	Right	30·8	33·5	36·3	39·7	42·1	45·1	..	..	23. 26. 37·92	48·45	23. 27. 26·37
	D	37	☽ L. L.	Left	37·6	40·0	42·9	45·9	48·7	51·8	..	..	23. 35. 44·48	48·47	23. 36. 32·95
	D	38	☽ L. L.										(Graham 1.)		
													....	..	....
				Left	..	..	..	..	..	..	..	..	....	..	....
Sept. 22	L	39	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	L	40	Collimator....	Right	48·9	3·3	17·3	31·7	46·8	1·6	..	..	1. 2. 24·93	35·15	1. 3. 0·08
	L	41	☽ L. L. .(E&E)	Left	13·7	27·4	41·8	55·9	9·9	24·8	..	..	1. 15. 48·92	35·15	1. 16. 24·07
	L	42	☽ L. L. .(E&E)												

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^{r}\cdot7$ of A, to $7^{r}\cdot9$ of B, to $7^{r}\cdot8$ of C, and to $7^{r}\cdot8$ of D.

Correction for Runs of Microscopes for 100″, + 0″·76.

5, &c. The upper and lower limbs were sensibly perfect. No correction has been applied for defect of illumination.

13, 14. Limb rugged.

13. Cloudy.

24. Very cloudy.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
A	B	C	D		E	F	G	H			Interior.	Exterior.				
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
5·748	5·685	5·669	5·401	341. 48. 50·43	82·0	257·5	118·2	332·5	85·06	29·83	66·6	60·3	3. 48·02	341. 46. 27·47	76. 20. 37·28	1
7·021	6·612	6·775	6·921	133. 14. 24·84	71·9	246·2	107·2	320·3	73·91	,,	,,	60·0	3. 30·57	133. 19. 9·32	75. 12. 4·57	2
2·208	1·947	2·088	2·038	315. 47. 22·81	76·6	248·5	112·7	322·8	77·66	..	..	..	..	315. 48. 40·47	102. 18. 24·28	3
4·958	4·675	4·874	4·880	160. 24. 10·40	79·0	249·3	115·0	323·0	79·08	..	..	..	..	160. 25. 29·48	102. 18. 24·73	4
3·985	3·512	3·740	3·877	128. 17. 26·52	73·5	254·2	106·8	326·7	77·81	29·93	63·0	55·7	2. 38·19	128. 21. 22·52	70. 14. 17·77	5
3·985	3·512	3·740	3·877	128. 17. 26·52	73·5	254·2	106·8	326·7	77·81	,,	,,	,,	2. 38·19	128. 21. 22·52	70. 14. 17·77	6
6·264	6·267	6·167	5·887	349. 58. 58·30	75·6	257·0	111·3	329·2	80·78	,,	,,	55·4	2. 22·14	349. 57. 56·94	68. 9. 7·81	7
6·264	6·267	6·167	5·887	349. 58. 58·30	75·6	257·0	111·3	329·2	80·78	,,	,,	,,	2. 22·14	349. 57. 56·94	68. 9. 7·81	8
1·997	1·913	1·983	1·873	315. 47. 17·80	80·0	260·2	112·7	332·5	83·86	..	..	..	..	315. 48. 41·66	102. 18. 23·09	9
5·015	4·795	4·968	4·936	160. 24. 13·57	69·8	249·2	103·0	321·2	73·30	..	..	..	..	160. 25. 26·87	102. 18. 22·12	10
5·020	4·730	4·957	4·997	160. 24. 13·47	68·2	253·0	100·6	329·0	75·20	..	..	..	..	160. 25. 28·67	102. 18. 23·92	11
2·009	1·820	1·924	1·820	315. 47. 15·93	79·6	262·4	112·0	338·6	85·65	..	..	..	..	315. 48. 41·58	102. 18. 23·17	12
3·379	3·100	3·220	3·030	348. 42. 3·36	75·9	256·9	110·9	332·0	81·44	29·84	63·5	58·5	2. 30·31	348. 40. 54·49	69. 26. 10·26	13
7·125	6·744	6·930	7·084	126. 39. 30·22	69·5	250·0	104·2	326·0	74·93	,,	,,	58·4	2. 24·05	126. 43. 9·20	68. 36. 4·45	14
4·033	3·886	3·932	3·723	346. 57. 30·93	77·7	264·0	110·6	337·0	84·83	30·06	61·5	54·2	2. 47·80	346. 56. 7·96	71. 10. 56·79	15
2·512	2·055	2·272	2·417	127. 51. 29·76	68·5	255·0	101·7	327·2	75·61	,,	,,	54·4	2. 35·66	127. 55. 21·03	69. 48. 16·28	16
4·922	4·648	4·857	4·825	160. 24. 9·09	68·4	253·7	102·2	326·7	75·26	..	..	..	..	160. 25. 24·35	102. 18. 19·60	17
2·122	1·997	2·106	2·013	315. 47. 22·37	75·0	259·0	109·5	332·5	81·51	..	..	..	..	315. 48. 43·88	102. 18. 20·87	18
4·910	4·621	4·888	4·871	160. 24. 9·46	63·8	257·6	92·5	335·1	74·76	..	..	..	..	160. 25. 24·22	102. 18. 19·47	19
2·090	1·842	1·992	1·960	315. 47. 18·96	75·0	268·0	104·0	344·5	85·38	..	..	..	..	315. 48. 44·34	102. 18. 20·41	20
4·981	4·986	5·061	4·721	340. 8. 11·34	69·7	261·5	100·2	338·8	80·06	30·23	58·8	50·1	4. 28·62	340. 5. 2·78	78. 2. 1·97	21
3·216	2·726	2·970	3·165	134. 51. 57·08	64·2	256·0	94·0	331·8	74·00	,,	,,	49·8	4. 4·84	134. 57. 15·92	76. 50. 11·17	22
4·933	4·530	4·827	4·836	160. 24. 7·89	62·8	262·7	89·8	340·2	76·38	..	..	..	..	160. 25. 24·27	102. 18. 19·52	23
1·790	1·371	1·617	1·486	13. 36. 0·75	66·0	264·8	94·0	341·6	79·10	30·27	56·5	52·2	57·47	13. 36. 22·38	44. 30. 42·37	24
5·925	5·520	5·711	5·797	101. 58. 42·45	67·9	264·8	95·3	341·8	79·96	,,	,,	52·1	56·27	102. 0. 58·68	43. 53. 53·93	25
2·173	2·006	2·262	2·041	315. 47. 24·74	68·5	265·0	97·0	341·2	80·43	..	..	..	..	315. 48. 45·17	102. 18. 19·58	26
4·871	4·622	4·814	4·843	160. 24. 8·11	71·6	258·8	105·3	334·0	79·93	..	..	..	..	160. 25. 28·04	102. 18. 23·29	27
2·272	2·046	2·176	2·095	315. 47. 25·79	71·6	258·2	104·7	333·3	79·46	..	..	..	..	315. 48. 45·25	102. 18. 19·50	28
4·452	4·089	4·278	4·296	141. 32. 45·85	67·2	252·6	101·0	326·6	74·35	30·18	62·0	55·7	7. 46·57	141. 41. 46·77	83. 34. 42·02	29
2·075	1·923	1·983	1·837	335. 16. 15·77	73·5	258·7	107·6	333·2	80·76	,,	,,	,,	7. 10·37	335. 10. 26·16	82. 56. 38·59	30
4·944	4·940	4·910	4·470	354. 58. 6·66	71·6	260·0	102·5	334·0	79·53	30·06	60·3	54·4	1. 53·72	354. 57. 32·47	63. 9. 32·28	31
2·153	1·988	2·122	2·065	315. 47. 23·25	69·8	257·5	102·7	332·0	78·01	..	..	..	..	315. 48. 41·26	102. 18. 23·49	32
4·837	4·574	4·772	4·764	160. 24. 6·13	70·5	258·3	104·5	333·7	79·27	..	..	..	..	160. 25. 25·40	102. 18. 20·65	33
4·912	4·468	4·558	4·788	116. 28. 2·48	67·3	253·7	100·0	328·5	74·89	30·06	60·3	54·2	1. 33·74	116. 30. 51·11	58. 23. 46·36	34
2·155	1·984	2·114	2·046	315. 47. 22·97	71·7	263·3	102·0	340·0	81·76	..	..	..	..	315. 48. 44·73	102. 18. 20·02	35
4·842	4·540	4·776	4·838	160. 24. 6·62	66·1	257·2	96·0	333·8	75·78	..	..	..	..	160. 25. 22·40	102. 18. 17·65	36
0·884	0·372	0·652	0·846	137. 10. 26·74	66·1	256·5	96·2	333·1	75·49	30·14	58·3	49·9	4. 54·64	137. 16. 36·87	79. 9. 32·12	37
0·732	0·681	0·780	0·459	340. 20. 25·70	69·7	260·0	101·0	336·8	79·38	,,	,,	49·6	4. 23·72	340. 17. 21·36	77. 49. 43·39	38
2·236	2·017	2·158	2·104	315. 47. 25·50	72·8	265·2	103·7	340·2	82·98	..	..	..	..	315. 48. 48·48	102. 18. 17·54	39
4·917	4·613	4·852	4·856	160. 24. 9·40	63·5	256·3	96·0	332·8	74·66	..	..	..	..	160. 25. 24·06	102. 18. 18·04	40
6·994	6·696	6·889	6·981	141. 59. 27·06	65·6	264·2	91·7	340·3	77·96	30·03	59·3	48·0	8. 22·05	142. 9. 7·07	84. 2. 1·05	41
6·892	6·722	6·813	6·699	336. 4. 22·78	66·4	264·3	94·6	341·4	79·18	,,	,,	48·2	6. 35·38	335. 59. 6·58	82. 7. 59·44	42

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 7′. 4″·75 ; September 22, 58°. 7′. 6″·02.

The Collimator is generally bisected by Wire X ; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′.2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

1. The correction applied in forming Circle Reading for mean of wires observed is + 12″·39.

33. The reading for H was set down 328°·7.

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Observations of Zenith Distance with the Altazimuth,

Day.	Observer.	No. for Reference.	Name of Object.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
Oct. 13	E	1	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	2	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Oct. 14	C	3	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	4	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	5	☽ L. L.	Left	22·0	25·4	29·5	33·5	37·5	40·8	..	—0·12	0. 25. 31·33	28·57	0. 25. 59·90
	C	6	☽ L. L.	Right	16·6	20·5	24·5	28·7	32·6	36·8	..	—0·12	0. 34. 26·50	28·58	0. 34. 55·08
Oct. 16	L	7	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	L	8	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	L	9	☽ U. L.	Right	52·8	55·7	58·7	1·9	4·9	7·9	..	—0·27	7. 52. 0·05	31·63	7. 52. 31·68
	L	10	☽ U. L.	Left	8·5	10·8	13·8	17·3	20·4	23·4	..	—0·27	8. 1. 15·43	31·63	8. 1. 47·06
Oct. 17	E	11	☽ L. L.	Right	31·4	34·0	36·7	39·8	42·6	45·4	..	+0·16	23. 38. 38·48	32·43	23. 39. 10·91
	E	12	☽ L. L.	Left	0·4	3·0	5·8	8·8	11·7	14·3	..	+0·16	23. 48. 7·49	32·44	23. 48. 39·93
	E	13	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	14	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Oct. 18	C	15	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	16	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	17	☽ L. L.	Left	25·3	28·4	31·0	33·6	36·7	39·6	..	—0·12	0. 31. 32·31	33·77	0. 32. 6·08
	C	18	☽ L. L.	Right	57·6	0·4	3·3	6·4	8·9	11·7	..	—0·12	0. 41. 4·60	33·78	0. 41. 38·38
Oct. 19	K	19	☽ L. L.	Right	59·1	2·0	4·4	8·0	10·9	14·0	..	+0·04	0. 56. 6·44	35·16	0. 56. 41·60
	K	20	☽ L. L.	Left	27·1	30·0	32·8	35·9	39·0	41·8	..	+0·04	1. 8. 34·47	35·17	1. 9. 9·64
	K	21	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	K	22	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Oct. 20	D	23	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	24	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	D	25	☽ L. L.	Left	20·2	23·1	26·4	29·4	32·0	35·1	..	..	1. 57. 27·70	36·76	1. 58. 4·46
	D	26	☽ L. L.	Right	1·7	4·6	7·7	10·6	13·6	16·1	..	..	2. 7. 9·05	36·77	2. 7. 45·82
Oct. 23	D	27	☽ L. L.	Right	42·2	46·1	49·6	53·6	57·4	0·7	..	..	8. 42. 51·60	41·60	8. 43. 33·20
	D	28	☽ L. L.	Left	6·1	10·4	14·0	18·0	22·0	26·0	..	..	8. 56. 16·08	41·61	8. 56. 57·69
Nov. 2	E	29	☽ L. L.	Right	34·5	45·4	55·7	7 0	16·9	28·1	+0·04	+0·16	20. 23. 1·47	56·47	20. 23. 57·94
	E	30	☽ L. L.	Left	9·0	17·8	26·8	36 7	44·8	53·0	+0·03	+0·16	20. 35. 31·54	56·48	20. 36. 28·02
	E	31	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	E	32	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Nov. 3	D	33	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	D	34	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	D	35	☽ L. L.	Left	16·4	28·4	40·2	54·1	5·7	18·2	—0·07	..	19. 18. 47·10	57·91	19. 19. 45·01
	D	36	☽ L. L.	Right	56·9	12·0	26·9	42·6	56·6	11·0	—0·14	..	19. 28. 34·20	57·92	19. 29. 32·12
Nov. 4	JC	37	☽ L. L.	Right	57·9	7·0	15·9	25·0	34·8	43·9	—0·03	—0·08	19. 54. 20·64	59·01	19. 55. 19·65
	JC	38	☽ L. L.	Left	52·5	3·0	14·0	25·5	36·8	47·9	—0·06	—0·08	20. 6. 19·81	59·02	20. 7. 18·83
	JC	39	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	40	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·7 of A, to 7ʳ·9 of B, to 7ʳ·8 of C, and to 7ʳ·8 of D.

Correction for Runs of Microscopes for 100″, +0″·43; from November 2, +0″·87.

5, 6. Very cloudy; faint.

28. Faint.

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Readings of Microscopes of Vertical Circle. A	B	C	D	Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle. E	F	G	H	Concluded Level Indication.	Barometer.	Thermometer. Interior.	Exterior.	Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
4·762	4·404	4·711	4·709	160. 24. 2·07	58·7	270·4	82·5	346·5	77·04	..	..	..	..	160. 25. 19·11	102. 18. 15·13	1
2·236	2·040	2·252	2·178	315. 47. 26·63	61·7	272·0	85·8	349·0	79·63	..	..	..	..	315. 48. 46·26	102. 18. 17·72	2
4·816	4·497	4·832	4·774	160. 24. 5·27	72·4	267·6	101·5	343·2	83·68	..	..	..	..	160. 25. 28·95	102. 18. 24·97	3
2·191	2·016	2·279	2·096	315. 47. 25·42	62·0	257·2	93·9	334·6	74·43	..	..	..	..	315. 48. 39·85	102. 18. 24·13	4
6·380	6·000	6·272	6·175	8. 43. 59·81	71·1	266·6	101·0	342·0	82·68	29·75	57·8	54·2	1. 6·68	8. 44. 15·81	49. 22. 48·17	5
2·990	2·486	2·649	2·850	106. 31. 46·04	62·6	256·9	92·8	333·8	74·03	,,	,,	54·3	1. 4·53	106. 34. 4·60	48. 27. 0·62	6
4·885	4·563	4·813	4·795	160. 24. 6·60	70·8	266·6	96·6	338·8	80·70	..	..	..	..	160. 25. 27·30	102. 18. 23·32	7
2·268	2·012	2·214	2·106	315. 47. 25·63	68·7	262·2	93·0	337·0	77·73	..	..	..	..	315. 48. 43·36	102. 18. 20·62	8
1·822	1·314	1·425	1·665	109. 6. 0·20	69·5	266·7	90·5	337·4	78·54	29·69	56·5	50·3	1. 11·09	109. 8. 29·83	51. 1. 25·85	9
7·225	7·337	7·048	6·609	5. 49. 32·51	73·2	268·6	96·5	342·2	82·63	,,	,,	50·2	1. 14·39	5. 49. 40·75	52. 17. 23·23	10
5·308	4·967	5·259	5·353	132. 48. 21·75	72·5	268·0	97·7	339·0	81·81	29·72	58·0	52·9	3. 26·77	132. 53. 10·33	74. 46. 6·35	11
4·460	4·321	4·392	4·140	344. 47. 47·22	65·7	260·0	93·5	334·0	75·81	,,	,,	,,	3. 8·90	344. 45. 54·13	73. 21. 9·85	12
4·875	4·595	4·816	4·802	160. 24. 6·89	68·5	263·5	95·2	335·0	78·06	..	..	..	..	160. 25. 24·95	102. 18. 20·97	13
2·149	1·965	2·103	2·047	315. 47. 22·36	71·4	264·4	99·0	338·4	80·80	..	..	..	..	315. 48. 43·16	102. 18. 20·82	14
2·099	1·870	2·213	2·031	315. 47. 21·88	68·0	271·2	93·5	348·0	82·68	..	..	..	..	315. 48. 44·56	102. 18. 19·42	15
4·890	4·578	4·902	4·870	160. 24. 8·37	61·6	263·2	86·9	341·0	75·68	..	..	..	..	160. 25. 24·05	102. 18. 20·07	16
1·401	1·220	1·464	1·190	342. 20. 50·97	61·4	261·9	88·4	340·0	75·43	29·64	56·0	47·8	3. 43·81	342. 18. 22·59	75. 48. 41·39	17
2·460	2·080	2·470	2·460	132. 26. 31·50	67·2	267·1	92·5	343·5	80·09	,,	,,	47·9	3. 23·43	132. 31. 15·02	74. 24. 11·04	18
8·015	7·620	7·974	8·006	139. 50. 5·37	61·4	270·1	84·1	347·1	78·19	29·68	..	42·7	6. 23·76	139. 57. 47·32	81. 50. 43·34	19
4·046	3·959	4·182	3·865	338. 7. 35·03	60·1	268·1	84·4	345·4	77·01	,,	..	42·8	5. 19·72	338. 3. 32·32	80. 3. 31·66	20
5·066	4·558	4·932	4·939	160. 24. 10·86	54·6	261·1	79·9	338·1	70·94	..	..	..	..	160. 25. 21·80	102. 18. 17·82	21
2·145	1·849	2·268	2·094	315. 47. 23·27	74·1	279·6	97·5	354·1	88·84	..	..	..	..	315. 48. 52·11	102. 18. 11·87	22
4·845	4·523	4·846	4·814	160. 24. 6·33	55·0	268·0	76·5	346·6	74·03	..	..	..	..	160. 25. 20·36	102. 18. 16·38	23
2·092	1·859	2·114	2·036	315. 47. 20·80	69·0	281·2	91·2	359·0	87·60	..	..	..	..	315. 48. 48·40	102. 18. 15·58	24
3·209	3·072	3·318	3·078	334. 57. 2·45	63·2	273·6	86·1	352·0	81·23	29·98	51·6	44·3	7. 36·55	334. 50. 47·13	83. 16. 16·85	25
3·295	2·839	3·172	3·301	139. 52. 1·80	59·2	269·2	81·0	346·1	76·38	,,	,,	44·1	6. 27·86	139. 59. 46·04	81. 52. 42·06	26
1·071	0·559	0·771	1·079	117. 0. 33·67	69·6	270·1	93·6	345·2	82·13	29·77	55·5	50·6	1. 35·53	117. 3. 31·33	58. 56. 27·35	27
7·128	7·172	7·040	6·668	0. 39. 30·48	62·1	261·9	90·0	341·0	76·26	,,	,,	50·8	1. 30·18	0. 39. 16·56	57. 27. 47·42	28
8·092	7·764	8·032	8·113	129. 55. 10·46	66·8	281·6	88·5	357·0	85·98	30·41	49·5	44·4	3. 0·15	129. 59. 36·59	71. 52. 32·75	29
6·039	5·928	6·125	5·857	345. 43. 52·30	50·8	264·8	75·0	342·4	70·75	,,	,,	,,	3. 5·93	345. 41. 57·12	72. 25. 6·72	30
1·924	1·686	1·918	1·802	315. 47. 13·66	70·7	281·9	93·5	357·2	88·34	..	..	..	..	315. 48. 42·00	102. 18. 21·84	31
5·004	4·710	5·024	5·006	160. 24. 14·07	50·5	261·8	76·7	338·7	69·44	..	..	..	..	160. 25. 23·51	102. 18. 19·67	32
1·931	1·638	1·952	1·920	315. 47. 14·74	67·0	283·3	88·0	360·8	87·28	..	..	..	..	315. 48. 42·02	102. 18. 21·82	33
5·079	4·781	5·148	5·131	160. 24. 17·92	48·0	263·9	71·3	343·1	69·09	..	..	..	..	160. 25. 27·01	102. 18. 23·17	34
4·501	4·270	4·509	4·280	348. 2. 50·35	46·2	262·3	72·0	342·1	68·16	30·41	48·2	45·4	2. 42·92	348. 1. 15·59	70. 5. 48·25	35
0·625	0·086	0·448	0·643	127. 50. 17·54	70·1	284·6	91·8	361·2	89·43	,,	,,	44·8	2. 40·49	127. 54. 27·46	69. 47. 23·62	36
7·671	7·276	7·549	7·667	126. 34. 52·62	63·0	273·8	86·8	349·7	80·83	30·16	51·0	50·0	2. 27·55	126. 38. 41·00	68. 31. 37·16	37
2·183	1·951	2·171	1·872	350. 6. 19·34	58·8	268·0	84·7	345·6	76·78	,,	,,	49·5	2. 24·10	350. 5. 12·02	68. 1. 51·82	38
1·978	1·751	2·052	1·897	315. 47. 17·04	64·0	270·2	90·2	347·0	80·35	..	..	..	..	315. 48. 37·39	102. 18. 26·45	39
5·030	4·689	5·017	5·020	160. 24. 14·19	59·2	265·0	85·8	341·7	75·43	..	..	..	..	160. 25. 29·62	102. 18. 25·78	40

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 7′. 3″·98 ; from November 2, 58°. 7′. 3″·84.

The Collimator is generally bisected by Wire X ; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′. 2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

8. The reading for G was set down $98^{d}\cdot0$.

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OBSERVATIONS OF ZENITH DISTANCE, WITH THE ALTAZIMUTH,

DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
Nov. 17	C	1	☽ L. L.	Left	42·8	45·8	49·4	52·5	55·7	58·8	..	−0·12	6. 24. 50·71	10·60	6. 25. 1·31
	C	2	☽ L. L.	Right	14·1	17·4	20·7	24·3	27·4	31·1	..	−0·12	6. 35. 22·38	10·60	6. 35. 32·98
	C	3	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	C	4	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
Nov. 19	D	5	☽ L. L.	Left	49·2	52·0	54·8	57·9	0·9	3·5	..	..	6. 17. 56·38	11·92	6. 18. 8·30
	D	6	☽ L. L.	Right	33·6	36·5	39·6	42·4	45·4	48·0	..	..	6. 42. 40·92	11·93	6. 42. 52·85
	D	7	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	D	8	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
Nov. 20	JC	9	☽ L. L.	Right	48·5	52·0	56·0	59·8	3·5	7·5	..	−0·08	9. 30. 57·81	12·70	9. 31. 10·51
	JC	10	☽ L. L.	Left	56·2	59·8	4·2	8·2	12·4	16·2	..	−0·08	9. 40. 6·09	12·70	9. 40. 18·79
	JC	11	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	12	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
Nov. 28	JC	13	☽ L. L.	Right	11·8	16·2	20·2	25·1	29·4	33·8	..	−0·08	20. 58. 22·67	17·35	20. 58. 40·02
	JC	14	☽ L. L.	Left	44·4	48·5	52·7	57·0	1·0	5·4	..	−0·08	21. 13. 54·75	17·35	21. 14. 12·10
	JC	15	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	16	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
Nov. 29	D	17	☽ L. L.	Left	58·2	4·7	11·2	17·7	24·1	30·1	+ 0·01	..	20. 48. 14·34	17·69	20. 48. 32·03
	D	18	☽ L. L.	Right	38·0	43·5	50·0	56·2	1·9	7·8	+ 0·01	..	20. 56. 52·91	17·69	20. 57. 10·60
	D	19	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	D	20	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
Dec. 2	JC	21	☽ L. L.	Right	38·1	48·4	57·0	6·4	16·6	25·6	− 0·03	−0·08	20. 28. 1·91	17·29	20. 28. 19·20
	JC	22	☽ L. L.	Left	31·4	41·8	54·2	4·4	16·0	26·9	− 0·06	−0·08	20. 38. 58·98	17·29	20. 39. 16·27
	JC	23	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
	JC	24	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
Dec. 3	D	25	☽ L. L.	Right	54·1	58·6	3·2	8·2	12·9	16·9	..	..	0. 44. 5·65	17·50	0. 44. 23·15
	D	26	☽ L. L.	Left	9·3	13·1	17·6	23·0	27·0	30·9	..	..	0. 53. 20·15	17·50	0. 53. 37·65
	D	27	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	D	28	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Dec. 4	E	29	☽ L. L.	Left	24·3	36·1	48·0	0·6	12·8	26·1	− 0·09	+0·16	22. 26. 54·72	17·60	22. 27. 12·32
	E	30	☽ L. L.	Right	30·4	44·3	0·4	16·9	33·0	47·5	− 0·18	+0·16	22. 36. 8·73	17·60	22. 36. 26·33
	E	31	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	E	32	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....
Dec. 5	C	33	☽ U. L.	Left	39·4	42·6	46·1	49·7	53·2	56·8	..	−0·12	20. 51. 47·85	17·38	20. 52. 5·23
	C	34	☽ U. L.	Right	44·3	47·6	51·4	55·2	58·6	2·0	..	−0·12	20. 55. 53·06	17·38	20. 56. 10·44
	C	35	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....
	C	36	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
Dec. 6	JC	37	☽ U. L.	Left	32·8	35·7	39·1	42·6	45·8	48·8	..	−0·08	21. 38. 40·72	16·75	21. 38. 57·47
	JC	38	☽ U. L.	Right	52·2	55·4	58 8	2·4	5·9	9·0	...	−0·08	21. 42. 0·54	16·75	21. 42. 17·29
	JC	39	Collimator....	Right	..	..	..	..	..	..	..	..	....	..	....
	JC	40	Collimator....	Left	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to $7^{r}\cdot7$ of A, to $7^{r}\cdot9$ of B, to $7^{r}\cdot8$ of C, and to $7^{r}\cdot8$ of D.

Correction for Runs of Microscopes for 100″, + 0″·87; from November 28, + 0″·79.

1, 2. Cloudy.

2. Very faint.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
A	B	C	D		E	F	G	H			Interior.	Exterior.				
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
4·620	4·425	4·596	4·299	5. 52. 54·03	34·7	275·0	53·0	359·4	68·03	30·03	39·8	35·3	1. 17·46	5. 52. 44·60	52. 14. 19·24	1
7·486	7·047	7·334	7·533	108. 59. 45·22	55·9	293·0	70·5	374·0	85·86	,,	,,	35·0	1. 13·95	109. 2. 25·03	50. 55. 21·19	2
4·970	4·610	5·034	5·078	160. 24. 13·58	39·5	272 6	56·6	356·0	68·68	..	..	..	..	160. 25. 22·26	102. 18. 18·42	3
1·989	1·690	2·070	1·989	315. 47. 17·62	60·0	291·3	76·3	373·8	87·86	..	..	..	..	315. 48. 45·48	102. 18. 18·36	4
5·721	5·591	5·810	5·567	343. 13. 40·09	42·1	274·3	61·1	357·2	71·19	30·23	42·5	38·1	3. 39·28	343. 11. 12·00	74. 55. 51·84	5
6·130	5·602	6·009	6·169	129. 23. 51·99	56·9	287·0	71·5	365·6	82·76	,,	,,	37·9	2. 56·22	129. 28. 10·97	71. 21. 7·13	6
4·987	4·614	5·058	5·057	160. 24. 13·80	43·3	273·3	61·0	354·1	70·44	..	..	..	..	160. 25. 24·24	102. 18. 20·40	7
1·960	1·668	2·059	1·948	315. 47. 16·63	61·6	291·3	78·5	370·5	87·99	..	..	..	..	315. 48. 44·62	102. 18. 19·22	8
7·480	7·124	7·393	7·601	118. 19. 47·15	57·8	295·0	71·8	374·0	87·15	30·31	40·2	37·9	1. 45·24	118. 22. 59·54	60. 15. 55·70	9
5·225	4·973	5·256	4·990	358. 48. 18·33	40·8	276·0	58·8	359·0	71·15	,,	,,	37·7	1. 41·40	358. 47. 48·08	59. 19. 15·76	10
1·968	1·709	2·109	1·922	315. 47. 17·34	60·7	291·8	77·3	371·4	87·81	..	..	..	..	315. 48. 45·15	102. 18. 18·69	11
5·028	4·664	5·072	5·114	160. 24. 15·38	40·0	270·7	59·0	352·3	68·01	..	..	..	..	160. 25. 23·39	102. 18. 19·55	12
3·938	3·494	3·876	3·971	138. 2. 28·15	58·8	292·0	73·8	369·2	85·95	30·23	41·5	38·6	5. 27·93	138. 9. 22·03	80. 2. 18·24	13
4·598	4·451	4·714	4·506	336. 37. 57·08	43·7	275·0	62·8	357·2	72·18	,,	,,	,,	6. 22·71	336. 32. 46·55	81. 34. 17·24	14
1·870	1·659	2·064	1·841	315. 47. 14·61	63·0	292·5	79·2	372·0	89·18	..	..	..	..	315. 48. 43·79	102. 18. 20·00	15
5·022	4·655	5·081	5·065	160. 24. 14·70	42·0	271·2	60·3	352·8	69·08	..	..	..	..	160. 25. 23·78	102. 18. 19·99	16
7·991	8·019	8·139	7·859	343. 25. 10·21	43·9	271·3	66·2	354·5	71·49	30·19	43·9	41·0	3. 34·87	343. 22. 46·83	74. 44. 16·96	17
1·915	1·370	1·761	1·953	133. 21. 7·90	61·9	288·3	78·0	365·7	85·99	,,	,,	40·8	3. 43·56	133. 26. 17·45	75. 19. 13·66	18
4·979	4·687	5·075	5·088	160. 24. 14·75	45·8	271·1	65·2	353·2	71·33	..	..	..	..	160. 25. 26·08	102. 18. 22·29	19
1·927	1·599	1·961	1·920	315. 47. 14·36	63·0	287·6	81·2	367·0	87·20	..	..	..	..	315. 48. 41·56	102. 18. 22·23	20
7·530	7·124	7·524	7·696	125. 4. 49·60	62·8	313·0	72·4	394·7	98·23	29·54	35·0	29·8	2. 20·11	125. 8. 47·94	67. 1. 44·15	21
5·454	5·251	5·510	5·284	351. 33. 28·39	21·2	270·0	36·8	357·0	58·75	,,	,,	29·3	2. 17·31	351. 32. 9·83	66. 34. 53·96	22
1·663	1·496	1·894	1·688	315. 47. 7·88	64·0	311·0	75·3	393·2	98·38	..	..	..	..	315. 48. 46·26	102. 18. 17·53	23
5·250	4·895	5·301	5·323	160. 24. 23·86	23·0	268·6	38·2	353·8	58·40	..	..	..	..	160. 25. 22·26	102. 18. 18·47	24
1·118	0·559	0·940	1·171	127. 5. 36·79	51·5	296·1	63·5	376·8	84·49	30·12	36·5	34·5	2. 36·25	127. 9. 37·53	69. 2. 33·74	25
7·526	7·491	7·650	7·304	348. 14. 50·48	37·7	281·6	54·0	366·5	72·46	,,	,,	34·2	2. 43·46	348. 13. 19·48	69. 53. 44·31	26
1·906	1·630	2·024	1·901	315. 47. 14·88	56·1	299·0	70·2	380·0	88·83	..	..	..	..	315. 48. 43·71	102. 18. 20·08	27
4·980	4·672	5·046	5·058	160. 24. 14·04	34·3	276·5	50·2	360·0	67·76	..	..	..	..	160. 25. 21·80	102. 18. 18·01	28
7·898	7·752	7·946	7·656	358. 45. 2·91	33·5	279·2	49·5	361·2	68·36	30·13	34·3	34·6	1. 41·67	358. 44. 29·60	59. 22. 34·19	29
7·308	6·856	7·030	7·317	117. 9. 36·38	56·2	300·0	68·5	380·4	88·78	,,	,,	34·4	1. 40·60	117. 12. 45·76	59. 5. 41·97	30
5·035	4·721	5·074	5·059	160. 24. 15·33	33·6	274·0	50·5	355·7	65·96	..	..	..	..	160. 25. 21·29	102. 18. 17·50	31
1·960	1·656	2·032	1·976	315. 47. 16·46	58·5	298·2	72·5	376·7	88·99	..	..	..	..	315. 48. 45·45	102. 18. 18·34	32
1·690	1·488	1·764	1·440	351. 26. 1·88	43·5	280·0	62·8	362·0	74·58	29·66	39·8	38·5	2. 15·97	351. 25. 0·49	66. 42. 3·30	33
2·370	1·800	2·182	2·400	124. 16. 24·90	52·9	289·2	68·0	368·0	82·03	,,	,,	38·4	2. 12·93	124. 19. 59·86	66. 12. 56·07	34
2·100	1·794	2·150	2·098	315. 47. 21·48	52·5	285·0	70·0	366·0	80·88	..	..	..	..	315. 48. 42·36	102. 18. 21·43	35
4·924	4·580	4·960	4·970	160. 24. 10·93	45·5	277·0	64·6	358·8	73·98	..	..	..	..	160. 25. 24·91	102. 18. 21·12	36
6·367	6·177	6·393	6·097	354. 44. 2·64	38·9	280·2	55·0	362·2	71·58	29·79	38·7	36·5	1. 58·15	354. 43. 16·07	63. 23. 47·72	37
4·247	3·750	4·088	4·263	121. 2. 38·51	52·1	293·2	65·6	373·3	83·56	,,	,,	,,	1. 56·07	121. 5. 58·14	62. 58. 54·35	38
4·878	4·535	4·936	4·952	160. 24. 9·63	42·8	280·5	58·8	362·3	73·61	..	..	..	..	160. 25. 23·24	102. 18. 19·45	39
2·031	1·807	2·208	1·984	315. 47. 20·39	53·0	290·7	68·3	371·2	83·31	..	..	..	..	315. 48. 43·70	102. 18. 20·09	40

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 7′. 3″·84; from November 28, 58°. 7′. 3″·79.

The Collimator is generally bisected by Wire X; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′. 2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z.D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

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DAY.	Observer.	No. for Reference.	NAME OF OBJECT.	Position of Graduated Face of Vertical Circle.	Seconds of Vertical Transit over Horizontal Wires. First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Correction for Inequality of Motion.	Correction for Personal Equation.	Concluded Clock Time of Vertical Transit over Mean of Horizontal Wires.	Clock Slow.	Sidereal Time.
					s	s	s	s	s	s	s	s	h m s	s	h m s
Dec. 19	S	1	☽ L. L.	Right	16·2	19·3	23·3	27·6	31·1	35·2	..	+0·04	10. 32. 25·49	3·55	10. 32. 29·04
	S	2	☽ L. L.	Left	50·2	54·2	57·9	2·1	6·0	10·2	..	+0·04	10. 42. 0·14	3·54	10. 42. 3·68
Dec. 22	E	3	☽ L. L.	Left	1·2	4·4	7·8	12·0	15·9	19·5	..	+0·16	12. 34. 10·29	58·11	12. 35. 8·40
	E	4	☽ L. L.	Right	30·1	33·3	37·0	41·4	45·3	48·7	..	+0·16	12. 44. 39·46	58·10	12. 45. 37·56
	E	5	Collimator	Right	..	..	..	..	..	..	..	..	....	..	....
	E	6	Collimator	Left	..	..	..	..	..	..	..	..	....	..	....

The observations of transits are generally made by the galvanic or chronographic method, the wires employed being S, T, U, V, W, X, taken in the order of transit, Face Right after the meridian, or Face Left before the meridian, and X, W, V, U, T, S, Face Left after the meridian, or Face Right before; the times are then referred immediately to the Transit-Clock Hardy. Whenever the observations are made by eye and ear, the wires employed are Q, R, S, X, Y, Z, Face Right after the meridian, or Face Left before, and Z, Y, X, S, R, Q, Face Left after the meridian, or Face Right before; the times then recorded are those of another clock, usually Graham 1.

For Tabular Equivalents of Microscopes, it is assumed that 5′ corresponds to 7ʳ·7 of A, to 7ʳ·9 of B, to 7ʳ·8 of C, and to 7ʳ·8 of D.

Correction for Runs of Microscopes for 100″, + 0″·79.

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Readings of Microscopes of Vertical Circle.				Concluded Reading of Vertical Circle.	Readings of Levels parallel to the Plane of the Vertical Circle.				Concluded Level Indication.	Barometer.	Thermometer.		Refraction.	Corrected Reading of Vertical Circle.	Concluded Zenith Distance.	No. for Reference.
A	B	C	D		E	F	G	H			Interior.	Exterior.				
rev.	rev.	rev.	rev.	° ′ ″	div.	div.	div.	div.	″	in.	°	°	′ ″	° ′ ″	° ′ ″	
3·005	2·379	2·741	3·028	127. 26. 48·17	59·5	302·1	72·5	382·5	91·67	29·75	..	29·4	2. 38·91	127. 30. 58·75	69. 23. 54·96	1
2·931	2·813	3·053	2·760	349. 46. 52·04	30·8	273·1	48·5	358·1	65·14	,,	..	,,	2. 30·72	349. 45. 26·46	68. 21. 37·33	2
4·079	3·891	4·213	4·040	336. 42. 37·26	34·8	271·0	54·5	352·2	65·63	30·08	40·6	33·5	6. 21·92	336. 37. 20·97	81. 29. 42·82	3
6·942	6·632	6·982	7·084	138. 19. 27·93	61·2	296·5	75·5	373·5	89·19	,,	,,	32·7	5. 39·69	138. 26. 36·81	80. 19. 33·02	4
4·834	4·522	4·907	4·928	160. 24. 8·56	40·2	277·0	58·5	358·6	71·08	..	..	..	..	160. 25. 19·64	102. 18. 15·85	5
1·977	1·762	2·147	2·072	315. 47. 19·68	60·2	296·2	72·0	373·0	87·85	..	..	..	..	315. 48. 47·53	102. 18. 16·26	6

The value of one division of each level scale is assumed to be one second of arc.

Zenith Point, 58°. 7′. 3″·79.

The Collimator is generally bisected by Wire X; the correction applied to the micrometer-equivalents to reduce the Concluded Reading of Vertical Circle to the reading corresponding to the mean of the wires, is + 1′.2″·53.

The Refractions to 82° Zenith Distance are computed from the Tables given in the Appendix to the Greenwich Observations for 1853. From 82° to 85° Z. D., the log. refractions are also taken from that Appendix, but are diminished by ·00100. Below 85°, the mean log. refractions of Bessel's *Fundamenta Astronomiæ* have been employed, diminished by ·00066, the other quantities being taken from the Appendix to the Observations for 1853.

4. The reading for E was set down $81^{d}\cdot2$.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N.P.D. of Center.	Normal-centric Correction to N.P.D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
Jan. 8	1	☽ 1 L.	4. 32. 32·37	21. 18. 5·64	36. 22. 0·60	W	102. 29. 39·11	−16·95	37. 40. 22·30
	2	☽ L. L.	4. 37. 12·16	21. 18. 15·29	37. 29. 44·25	W	102. 29. 4·73	16·95	
	3	☽ 1 L.	4. 42. 37·71	21. 18. 26·52	38. 48. 32·40	W	102. 28. 24·72	16·95	39. 58. 56·88
	4	☽ L. L.	4. 46. 46·49	21. 18. 35·12	39. 48. 45·45	W	102. 27. 54·12	16·95	
	5	ζ Pegasi		22. 34. 49·02	22. 23. 14·55	W	79. 51. 39·71		31. 53. 40·89
	6	ζ Pegasi		22. 34. 49·02	23. 49. 55·35	W	79. 51. 39·71		33. 46. 9·67
Jan. 11	7	☽ L. L.	4. 44. 6·95	23. 46. 58·12	5. 0. 25·80	W	91. 30. 8·10	17·87	
	8	☽ 1 L.	4. 50. 0·89	23. 47. 10·39	6. 26. 5·40	W	91. 29. 7·13	17·87	8. 2. 20·23
	9	☽ L. L.	4. 56. 45·29	23. 47. 24·41	8. 3. 57·60	W	91. 27. 57·45	17·87	
	10	☽ 1 L.	5. 1. 24·89	23. 47. 34·11	9. 11. 37·65	W	91. 27. 9·28	17·87	11. 27. 40·19
	11	ν Piscium		1. 34. 30·89	16. 10. 59·70	E	85. 11. 16·43		338. 15. 33·89
Jan. 12	12	☽ 1 L.	6. 11. 41·15	0. 40. 31·51	14. 33. 22·05	W	87. 4. 2·06	18·07	19. 6. 44·60
	13	☽ L. L.	6. 22. 6·57	0. 40. 53·73	17. 4. 35·85	W	87. 2. 12·87	18·07	
	14	☽ 1 L.	6. 41. 53·55	0. 41. 35·95	21. 51. 35·85	W	86. 58. 45·63	18·07	28. 14. 31·71
	15	☽ L. L.	6. 46. 48·27	0. 41. 46·41	23. 2. 51·90	W	86. 57. 54·20	18·07	
	16	ν Piscium		1. 34. 30·88	11. 45. 4·65	W	85. 11. 16·50		15. 55. 49·45
	17	ν Piscium		1. 34. 30·88	14. 9. 15·45	W	85. 11. 16·50		19. 5. 59·89
Jan. 13	18	☽ L. L.	4. 38. 29·51	1. 29. 8·95	19. 58. 35·55	E	83. 12. 1·42	18·16	
	19	☽ 1 L.	4. 41. 35·25	1. 29. 15·77	19. 13. 43·95	E	83. 11. 30·09	18·16	333. 37. 44·11
	20	☽ L. L.	4. 51. 43·80	1. 29. 38·12	16. 46. 46·05	E	83. 9. 47·58	18·16	
	21	☽ 1 L.	4. 55. 4·80	1. 29. 45·51	15. 58. 13·50	E	83. 9. 13·72	18·16	337. 53. 32·54
	22	ν Piscium		1. 34. 30·86	15. 46. 8·55	E	85. 11. 16·57		338. 47. 44·51
	23	ν Piscium		1. 34. 30·86	14. 3. 25·65	E	85. 11. 16·57		341. 1. 38·69
Jan. 14	24	☽ U. L.	3. 55. 7·88	2. 21. 32·62	42. 57. 33·60	E	79. 26. 18·97	18·18	
	25	☽ U. L.	3. 59. 30·72	2. 21. 42·70	41. 54. 11·25	E	79. 25. 38·78	18·18	
	26	☽ 1 L.	4. 4. 37·10	2. 21. 54·45	40. 40. 19·20	E	79. 24. 51·94	18·18	306. 11. 47·11
	27	☽ 1 L.	4. 9. 13·05	2. 22. 5·04	39. 33. 47·55	E	79. 24. 9·77	18·18	307. 22. 35·14
	28	ζ Pegasi		22. 34. 48·98	19. 10. 5·25	W	79. 51. 40·43		27. 36. 60·76
	29	ζ Pegasi		22. 34. 48·98	23. 44. 59·70	W	79. 51. 40·43		33. 39. 48·37
Jan. 15	30	☽ U. L.	5. 8. 25·39	3. 21. 4·06	38. 28. 53·40	E	75. 54. 59·39	18·14	
	31	☽ 1 L.	5. 14. 10·77	3. 21. 18·00	37. 5. 47·70	E	75. 54. 16·51	18·14	307. 46. 59·86
	32	☽ U. L.	5. 22. 21·36	3. 21. 37·79	35. 7. 45·60	E	75. 53. 15·69	18·14	
	33	☽ 1 L.	5. 31. 59·07	3. 22. 1·10	32. 48. 45·75	E	75. 52. 4·17	18·14	312. 44. 5·86
Jan. 16	34	☽ U. L.	7. 48. 53·38	4. 27. 14·73	13. 48. 49·95	E	73. 9. 43·10	18·07	
	35	☽ U. L.	7. 52. 8·19	4. 27. 22·96	13. 2. 3·30	E	73. 9. 27·50	18·07	
	36	☽ 1 L.	7. 54. 30·32	4. 27. 28·98	12. 27. 55·80	E	73. 9. 16·12	18·07	339. 25. 59·39
	37	☽ 1 L.	7. 59. 2·17	4. 27. 40·47	11. 22. 39·00	E	73. 8. 54·42	18·07	341. 9. 48·19
Jan. 17	38	☽ 1 L.	5. 6. 8·70	5. 22. 0·68	67. 19. 2·10	E	71. 54. 27·72	18·03	276. 4. 22·37
	39	☽ U. L.	5. 11. 46·54	5. 22. 15·33	65. 58. 0·45	E	71. 54. 15·34	18·03	
	40	☽ 1 L.	5. 17. 59·45	5. 22. 31·50	64. 28. 33·90	E	71. 54. 1·77	18·03	278. 24. 51·10
	41	☽ U. L.	5. 23. 26·79	5. 22. 45·70	63. 10. 3·30	E	71. 53. 49·93	18·03	
	42	ν Piscium		1. 34. 30·81	4. 24. 27·45	E	85. 11. 16·85		353. 58. 14·50
	43	ν Piscium		1. 34. 30·81	3. 6. 44·25	E	85. 11. 16·85		355. 44. 21·80
Jan. 18	44	☽ U. L.	9. 54. 36·45	6. 37. 24·95	12. 52. 10·80	E	71. 46. 0·96	18·05	
	45	☽ U. L.	9. 59. 29·10	6. 37. 37·71	11. 42. 0·30	E	71. 46. 8·96	18·05	
	46	☽ 1 L.	10. 4. 16·47	6. 37. 50·24	10. 33. 13·50	E	71. 46. 16·86	18·05	342. 0. 26·11
	47	☽ 1 L.	10. 9. 28·70	6. 38. 3·86	9. 18. 13·95	E	71. 46. 25·49	18·05	344. 4. 59·39
	48	α Orionis		5. 47. 59·64	4. 28. 42·90	W	82. 37. 26·51		6. 22. 15·79
	49	α Orionis		5. 47. 59·64	5. 33. 14·25	W	82. 37. 26·51		7. 53. 36·54
Jan. 19	50	☽ U. L.	7. 35. 9·20	7. 33. 45·24	60. 55. 39·15	E	72. 51. 50·67	18·06	
	51	☽ 1 L.	7. 39. 22·38	7. 33. 56·10	59. 54. 53·85	E	72. 52. 9·22	18·06	283. 1. 27·54
	52	☽ U. L.	7. 45. 34·31	7. 34. 12·04	58. 25. 38·85	E	72. 52. 36·53	18·06	
	53	☽ 1 L.	7. 50. 10·09	7. 34. 23·86	57. 19. 28·05	E	72. 52. 56·84	−18·06	285. 18. 52·95

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
											1
15. 59·48	37. 56. 21·78	25·50	− 3·72								
				71. 44. 6·94	15. 9·42	3·5230934	53. 7·23	72. 52. 23·59	23·54	+ 0·05	2
15. 54·39	40. 14. 51·27	48·41	+ 2·86								3
				72. 38. 30·24	15. 9·47	3·5231169	53. 22·64	73. 47. 2·35	8·29	− 5·94	4
		39·51	+ 1·38								5
		11·05	− 1·38								6
				53. 8. 41·27	15. 35·80	3·5355378	46. 22·80	54. 10. 39·87	39·71	+ 0·16	7
19. 27·50	8. 21. 47·73	47·74	− 0·01								8
				53. 22. 44·95	15. 35·89	3·5355784	46. 31·28	54. 24. 52·12	46·02	+ 6·10	9
19. 23·69	11. 47. 3·88	2·84	+ 1·04								10
		33·89	0·00								11
											12
20. 34·86	19. 27. 19·46	28·08	− 8·62								
				50. 34. 26·79	15. 47·21	3·5408344	45. 22·35	51. 35. 36·35	32·79	+ 3·56	13
20. 5·02	28. 34. 36·73	43·59	− 6·86								14
				52. 8. 7·98	15. 47·40	3·5409221	46. 21·35	53. 10. 16·73	16·45	+ 0·28	15
		51·60	− 2·15								16
		58·54	+ 1·35								17
				47. 37. 44·93	15. 57·57	3·5455265	43. 55·38	48. 37. 37·88	39·54	− 1·66	18
21. 39·99	333. 59. 24·10	30·00	− 5·90								19
				46. 44. 37·21	15. 57·67	3·5455723	43. 19·04	47. 43. 53·92	54·51	− 0·59	20
21. 58·70	338. 15. 31·24	32·54	− 1·30								21
		44·45	+ 0·06								22
		37·97	+ 0·72								23
				53. 43. 59·71	16. 8·41	3·5504185	48. 2·82	54. 15. 54·12	56·43	− 2·31	24
				53. 10. 50·68	16. 8·44	3·5504344	47. 42·59	53. 42. 24·83	28·23	− 3·40	25
20. 19·36	306. 32. 6·47	5·64	+ 0·83								26
20. 28·71	307. 43. 3·85	6·93	− 3·08								27
		58·35	+ 2·41								28
		50·62	− 2·25								29
				48. 26. 43·91	16. 19·28	3·5553021	45. 7·58	48. 55. 32·21	35·57	− 3·36	30
22. 2·42	308. 9. 2·28	2·14	+ 0·14								31
				46. 46. 42·11	16. 19·37	3·5553431	43. 57·16	47. 14. 19·90	20·56	− 0·66	32
22. 48·33	313. 6. 54·19	57·22	− 3·03								33
				36. 20. 9·51	16. 28·66	3·5594159	36. 4·99	36. 39. 45·84	47·78	− 1·94	34
				36. 8. 57·42	16. 28·68	3·5594219	35. 55·40	36. 28. 24·14	26·89	− 2·75	35
28. 0·44	339. 53. 59·83	52·84	+ 6·99								36
28. 10·00	341. 37. 58·19	48·06	+10·13								37
											38
18. 45·75	276. 23. 8·12	9·96	− 1·84								
				61. 2. 29·98	16. 33·37	3·5615066	53. 26·50	61. 39. 23·11	21·34	+ 1·77	39
19. 5·14	278. 43. 56·24	61·24	− 5·00								40
				59. 18. 41·14	16. 33·40	3·5615198	52. 32·43	59. 54. 40·17	38·48	+ 1·69	41
		13·20	+ 1·30								42
		22·19	− 0·39								43
				34. 45. 42·11	16. 34·92	3·5621666	34. 56·37	35. 4. 3·56	1·94	+ 1·62	44
				34. 30. 17·42	16. 34·91	3·5621642	34. 42·78	34. 48. 25·29	25·70	− 0·41	45
29. 25·77	342. 29. 51·88	55·97	− 4·09								46
29. 35·98	344. 34. 35·37	35·72	− 0·35								47
		16·25	− 0·46								48
		37·14	− 0·60								49
				58. 40. 57·48	16. 31·85	3·5607985	52. 6·80	59. 16. 32·43	33·12	− 0·69	50
19. 28·06	283. 20. 55·60	58·79	− 3·19								51
				57. 10. 36·50	16. 31·81	3·5607805	51. 16·30	57. 45. 20·99	23·76	− 2·77	52
19. 48·54	285. 38. 41·49	40·39	+ 1·10								53

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N. P. D. of Center.	Normal-centric Correction to N. P. D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
Feb. 11	1	α Orionis		5. 47. 59·45	10. 3. 24·45	E	82. 37. 27·88		345. 47. 32·25
	2	α Orionis		5. 47. 59·45	8. 3. 22·35	E	82. 37. 27·88		348. 35. 1·19
Feb. 14	3	☽ U. L.	5. 13. 35·61	6. 3. 23·70	48. 11. 52·35	E	71. 43. 34·52	−17·76	
	4	☽ 1 L.	5. 17. 12·75	6. 3. 32·86	47. 19. 43·65	E	71. 43. 33·84	17·76	293. 49. 2·14
	5	☽ U. L.	5. 22. 11·28	6. 3. 45·46	46. 8. 2·40	E	71. 43. 32·96	17·76	
	6	☽ 1 L.	5. 25. 24·86	6. 3. 53·61	45. 21. 33·00	E	71. 43. 32·40	17·76	295. 48. 9·04
	7	ν Piscium		1. 34. 30·44	23. 25. 12·15	W	85. 11. 18·63		30. 50. 54·44
	8	ν Piscium		1. 34. 30·44	24. 39. 56·85	W	85. 11. 18·63		32. 21. 45·13
Feb. 16	9	☽ 1 L.	6. 8. 14·37	8. 6. 24·66	63. 16. 54·15	E	74. 0. 11·85	17·94	280. 58. 11·87
	10	☽ U. L.	6. 11. 17·23	8. 6. 32·18	62. 32. 56·55	E	74. 0. 28·95	17·94	
	11	☽ 1 L.	6. 20. 4·85	8. 6. 53·90	60. 26. 6·30	E	74. 1. 18·37	17·94	283. 25. 32·85
	12	☽ U. L.	6. 24. 38·55	8. 7. 5·16	59. 20. 18·60	E	74. 1. 44·07	17·94	
	13	α Orionis		5. 47. 59·38	22. 48. 55·20	E	82. 37. 28·03		328. 48. 36·45
	14	α Orionis		5. 47. 59·38	21. 40. 42·75	E	82. 37. 28·03		330. 15. 12·39
Feb. 17	15	☽ 1 L.	9. 57. 56·00	9. 13. 48·89	21. 33. 58·80	E	77. 12. 56·95	18·08	327. 54. 38·04
	16	☽ U. L.	10. 2. 51·13	9. 14. 0·56	20. 22. 54·75	E	77. 13. 36·83	18·08	
	17	☽ U. L.	10. 8. 14·78	9. 14. 13·35	19. 4. 58·50	E	77. 14. 20·63	18·08	
	18	☽ 1 L.	10. 13. 8·60	9. 14. 24·95	17. 54. 13·20	E	77. 15. 0·40	18·08	333. 0. 20·17
Feb. 20	19	α Orionis		5. 47. 59·32	9. 12. 40·05	W	82. 37. 28·15		13. 1. 51·14
	20	α Orionis		5. 47. 59·32	10. 59. 57·30	W	82. 37. 28·15		15. 30. 47·99
	21	☽ 2 L.	8. 53. 13·80	11. 52. 12·37	74. 25. 38·55	E	88. 43. 48·39	17·95	281. 30. 38·59
	22	☽ L. L.	8. 56. 43·12	11. 52. 19·75	73. 35. 0·75	E	88. 44. 24·72	17·95	
	23	☽ 2 L.	9. 0. 0·27	11. 52. 26·68	72. 47. 19·50	E	88. 44. 58·96	17·95	282. 50. 50·14
	24	☽ L. L.	9. 4. 35·02	11. 52. 36·34	71. 40. 51·75	E	88. 45. 46·63	17·95	
Feb. 22	25	☽ L. L.	16. 24. 19·98	13. 46. 17·57	12. 6. 24·15	W	97. 49. 52·08	17·26	
	26	☽ 2 L.	16. 30. 34·95	13. 46. 30·17	13. 37. 15·00	W	97. 50. 47·63	17·26	15. 33. 10·39
	27	☽ L. L.	16. 36. 5·86	13. 46. 41·29	14. 57. 25·65	W	97. 51. 36·63	17·26	
	28	☽ 2 L.	16. 39. 54·43	13. 46. 48·98	15. 52. 48·15	W	97. 52. 10·45	17·26	18. 4. 19·55
	29	α Serpentis		15. 37. 43·62	10. 8. 44·10	E	83. 9. 18·01		345. 47. 5·36
	30	α Serpentis		15. 37. 43·62	8. 30. 2·25	E	83. 9. 18·01		348. 3. 33·83
Feb. 23	31	β Leonis		11. 42. 17·90	25. 37. 4·35	E	74. 41. 16·98		321. 3. 8·33
	32	β Leonis		11. 42. 17·90	24. 35. 43·35	E	74. 41. 16·98		322. 25. 12·73
	33	☽ 2 L.	12. 7. 39·36	14. 25. 59·00	61. 10. 30·60	E	100. 35. 43·80	16·97	299. 24. 0·24
	34	☽ L. L.	12. 10. 52·75	14. 26. 5·48	60. 23. 39·00	E	100. 36. 9·24	16·97	
	35	☽ 2 L.	12. 22. 30·23	14. 26. 28·83	57. 34. 38·40	E	100. 37. 40·94	16·97	302. 25. 44·43
	36	☽ L. L.	12. 25. 49·24	14. 26. 35·50	56. 46. 25·20	E	100. 38. 7·08	16·97	
Feb. 24	37	☽ 2 L.	14. 46. 58·83	15. 19. 36·08	33. 39. 13·95	E	103. 45. 23·75	16·61	325. 24. 41·13
	38	☽ L. L.	14. 52. 1·21	15. 19. 46·23	32. 25. 58·05	E	103. 45. 55·41	16·61	
	39	☽ 2 L.	14. 56. 1·07	15. 19. 54·29	31. 27. 51·30	E	103. 46. 20·51	16·61	327. 31. 9·89
	40	☽ L. L.	15. 0. 24·65	15. 20. 3·15	30. 23. 59·55	E	103. 46. 48·09	16·61	
	41	β Leonis		11. 42. 17·91	25. 49. 17·55	W	74. 41. 16·98		39. 13. 4·58
	42	β Leonis		11. 42. 17·91	27. 11. 51·90	W	74. 41. 16·98		41. 1. 29·09
Feb. 28	43	☽ 2 L.	17. 35. 12·29	18. 42. 50·90	38. 21. 6·90	E	108. 1. 44·83	16·23	322. 45. 26·39
	44	☽ L. L.	17. 39. 15·63	18. 42. 59·41	37. 22. 14·40	E	108. 1. 39·00	16·23	
	45	☽ L. L.	17. 42. 55·97	18. 43. 7·11	36. 28. 55·80	E	108. 1. 33·69	16·23	
	46	☽ 2 L.	17. 45. 59·00	18. 43. 13·52	35. 44. 38·85	E	108. 1. 29·27	16·23	325. 6. 25·36
	47	α Serpentis		15. 37. 43·78	12. 37. 47·25	W	83. 9. 18·49		17. 36. 52·38
	48	α Serpentis		15. 37. 43·78	16. 12. 31·20	W	83. 9. 18·49		22. 25. 18·98
Mar. 2	49	☽ L. L.	17. 49. 9·34	20. 24. 30·86	58. 17. 59·40	E	105. 14. 5·23	16·73	
	50	☽ 2 L.	17. 54. 18·46	20. 24. 41·75	57. 3. 13·20	E	105. 13. 37·06	16·73	305. 20. 10·09
	51	☽ L. L.	18. 0. 22·60	20. 24. 54·58	55. 35. 8·70	E	105. 13. 3·85	16·73	
	52	☽ 2 L.	18. 5. 24·76	20. 25. 5·22	54. 22. 3·45	E	105. 12. 36·23	−16·73	307. 33. 44·86

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
		32·89	− 0·64								1
		1·62	− 0·43								2
				50. 14. 21·59	16. 19·22	3·5552387	46. 20·47	50. 44. 22·84	21·55	+ 1·29	3
21. 22·49	294. 10. 24·63	20·24	+ 4·39								4
				49. 3. 52·45	16. 19·23	3·5552435	45. 32·78	49. 33. 6·00	4·16	+ 1·84	5
21. 44·22	296. 9. 53·26	48·59	+ 4·67								6
		53·99	+ 0·45								7
		43·19	+ 1·94								8
18. 36·99	281. 16. 48·86	48·83	+ 0·03								9
				60. 33. 13·78	16. 17·41	3·5544482	52. 19·79	61. 9. 16·16	15·58	+ 0·58	10
18. 56·36	283. 44. 29·21	28·44	+ 0·77								11
				58. 37. 18·28	16. 17·38	3·5544324	51. 19·02	59. 12. 19·92	17·10	+ 2·82	12
		38·61	− 2·16								13
		12·63	− 0·24								14
23. 58·18	328. 18. 36·22	28·66	+ 7·56								15
				42. 3. 45·58	16. 10·89	3·5515331	40. 3·67	42. 27. 38·36	39·69	− 1·33	16
				41. 40. 30·31	16. 10·86	3·5515209	39. 45·54	42. 4. 4·99	5·19	− 0·20	17
24. 28·96	333. 24. 49·13	44·82	+ 4·31								18
		49·95	+ 1·19								19
		49·17	− 1·18								20
15. 55·93	281. 14. 42·66	46·79	− 4·13								21
				78. 51. 27·51	15. 39·99	3·5374755	56. 35·70	80. 3. 43·20	45·43	− 2·23	22
15. 59·09	282. 34. 51·05	53·41	− 2·36								23
				77. 43. 15·92	15. 39·92	3·5374452	56. 22·94	78. 55. 18·78	15·96	+ 2·82	24
				60. 12. 49·29	15. 12·54	3·5245652	48. 54·80	61. 16. 56·63	55·01	+ 1·62	25
17. 28·13	15. 15. 42·26	40·55	+ 1·71								26
				60. 42. 54·92	15. 12·45	3·5245236	49. 8·60	61. 47. 15·97	16·47	− 0·50	27
17. 23·65	17. 46. 55·90	54·84	+ 1·06								28
		7·69	− 2·33								29
		31·50	+ 2·33								30
		10·28	− 1·95								31
		10·77	+ 1·96								32
15. 14·38	299. 8. 45·86	45·17	+ 0·69								33
				80. 52. 36·23	15. 4·35	3·5206741	54. 44·66	82. 2. 25·24	26·02	− 0·78	34
15. 19·45	302. 10. 24·98	23·85	+ 1·13								35
				78. 59. 0·49	15. 4·26	3·5206294	54. 27·31	80. 8. 32·06	32·66	− 0·60	36
15. 44·24	325. 8. 56·89	61·85	− 4·96								37
				71. 3. 54·88	14. 55·87	3·5165401	52. 7·60	72. 10. 58·35	56·76	+ 1·59	38
15. 48·37	327. 15. 21·52	25·11	− 3·59								39
				70. 23. 59·85	14. 55·83	3·5165216	51. 55·53	71. 30. 51·21	50·50	+ 0·71	40
		4·45	+ 0·13								41
		29·22	− 0·13								42
15. 16·17	322. 30. 10·22	14·23	− 4·01								43
				76. 47. 1·39	14. 55·79	3·5155443	53. 25·11	77. 55. 20·29	20·13	+ 0·16	44
				76. 27. 26·60	14. 53·80	3·5155309	53. 21·18	77. 35. 41·58	38·26	+ 3·32	45
15. 19·85	324. 51. 5·53	6·73	− 1·20								46
		50·54	+ 1·84								47
		20·81	− 1·83								48
				83. 40. 10·71	15. 8·16	3·5224960	55. 17·07	84. 50. 35·94	30·99	+ 4·95	49
15. 14·43	305. 4. 55·66	55·97	− 0·31								50
				82. 16. 40·16	15. 8·26	3·5225352	55. 9·11	83. 26. 57·53	55·76	+ 1·77	51
15. 17·45	307. 18. 27·41	27·47	− 0·06								52

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time. h m s	Tabular R. A. of Center. h m s	Hour Angle. ° ′ ″	Side of Meridian.	Tabular Geocentric N. P. D. of Center. ° ′ ″	Normal-centric Correction to N.P.D. ″	Tabular Normal-centric or Apparent Azimuth of Center. ° ′ ″
Mar. 25	1	☽ L. L.	14. 59. 41·40	16. 40. 48·74	22. 11. 13·80	E	107. 0. 29·24	−16·26	
	2	☽ 2 L.	15. 4. 57·39	16. 40. 59·58	20. 54. 43·65	E	107. 0. 47·35	16·26	338. 49. 23·78
Mar. 26	3	☽ L. L	15. 32. 58·70	17. 31. 30·30	25. 31. 47·40	E	108. 0. 53·16	16·14	
	4	☽ 2 L.	15. 36. 21·45	17. 31. 37·31	24. 42. 42·90	E	108. 0. 58·10	16·14	335. 24. 9·22
	5	☽ L. L.	15. 42. 2·44	17. 31. 49·06	23. 20. 10·35	E	108. 1. 6·34	16·14	
	6	☽ 2 L.	15. 45. 28·72	17. 31. 56·19	22. 30. 14·70	E	108. 1. 11·31	16·14	337. 31. 42·43
	7	α Serpentis.		15. 37. 44·44	10. 37. 28·20	W	83. 9. 19·03		14. 52. 26·38
	8	α Serpentis.		15. 37. 44·44	12. 15. 11·25	W	83. 9. 19·03		17. 6. 7·59
Mar. 27	9	☽ 2 L.	15. 51. 52·63	18. 21. 58·80	32. 25. 31·05	E	108. 11. 45·20	16·15	328. 12. 27·08
	10	☽ L. L.	15. 55. 39·62	18. 22. 6·66	31. 30. 34·95	E	108. 11. 43·02	16·15	
	11	☽ 2 L.	15. 59. 57·85	18. 22. 15·62	30. 28. 5·25	E	108. 11. 40·53	16·15	330. 1. 14·11
	12	☽ L. L.	16. 4. 8·29	18. 22. 24·30	29. 27. 28·65	E	108. 11. 38·07	16·15	
	13	α Serpentis		15. 37. 44·46	15. 50. 24·60	W	83. 9. 19·00		21. 55. 56·36
	14	α Serpentis		15. 37. 44·46	16. 57. 55·95	W	83. 9. 19·00		23. 25. 23·74
Mar. 29	15	☽ 2 L.	16. 41. 38·01	20. 3. 48·35	43. 26. 14·55	E	106. 4. 8·45	16·55	317. 23. 22·29
	16	☽ L. L.	16. 50. 35·20	20. 4. 7·05	41. 16. 15·15	E	106. 3. 27·05	16·55	
	17	☽ L. L.	16. 56. 57·23	20. 4. 20·34	39. 43. 48·30	E	106. 2. 57·54	16·55	
	18	☽ 2 L.	17. 1. 4·20	20. 4. 28·95	38. 44. 2·85	E	106. 2. 38·43	16·55	321. 35. 46·84
	19	α Aquilæ.		19. 44. 17·87	24. 22. 31·65	E	81. 28. 52·02		326. 19. 15·39
	20	α Aquilæ.		19. 44. 17·87	22. 49. 25·35	E	81. 28. 52·02		328. 17. 23·71
Mar. 30	21	☽ L. L.	17. 33. 1·01	20. 55. 45·90	42. 33. 37·80	E	103. 45. 16·52	16·91	
	22	☽ L. L.	17. 37. 7·65	20. 55. 54·50	41. 33. 57·15	E	103. 44. 49·69	16·91	
	23	☽ 2 L.	17. 40. 0·03	20. 56. 0·51	40. 52. 14·40	E	103. 44. 30·93	16·91	318. 39. 47·26
	24	☽ 2 L.	17. 45. 18·19	20. 56. 11·61	39. 35. 15·60	E	103. 43. 56·25	16·91	319. 50. 11·95
	25	α Aquilæ		19. 44. 17·90	20. 5. 51·75	E	81. 28. 52·01		331. 49. 17·20
	26	α Aquilæ.		19. 44. 17·90	18. 53. 45·75	E	81. 28. 52·01		333. 24. 23·87
Mar. 31	27	α Aquilæ		19. 44. 17·93	32. 51. 27·00	E	81. 28. 52·00		316. 6. 20·81
	28	α Aquilæ		19. 44. 17·93	31. 34. 58·05	E	81. 28. 52·00		317. 34. 53·86
	29	☽ 2 L.	17. 6. 39·15	21. 45. 9·40	60. 31. 54·90	E	100. 52. 3·98	17·30	300. 5. 7·98
	30	☽ L. L.	17. 10. 0·70	21. 45. 16·46	59. 43. 9·15	E	100. 51. 36·63	17·30	
	31	☽ L. L.	17. 15. 57·24	21. 45. 28·94	58. 16. 53·70	E	100. 50. 48·24	17·30	
	32	☽ 2 L.	17. 19. 15·74	21. 45. 35·90	57. 28. 52·50	E	100. 50. 21·28	17·30	302. 37. 29·81
April 7	33	☽ L. L.	7. 49. 8·83	3. 41. 12·87	77. 35. 42·60	W	75. 9. 56·76	18·13	
	34	☽ 1 L.	7. 53. 23·38	3. 41. 23·31	78. 36. 54·60	W	75. 9. 27·94	18·13	90. 37. 25·23
	35	☽ 1 L.	8. 3. 59·04	3. 41. 49·37	81. 9. 44·70	W	75. 8. 16·11	18·13	92. 36. 56·68
April 8	36	☽ 1 L.	7. 27. 42·01	4. 39. 59·06	58. 30. 42·90	W	72. 58. 34·14	17·91	75. 40. 1·77
	37	☽ L. L.	7. 31. 13·48	4. 40. 7·89	59. 21. 31·05	W	72. 58. 19·18	17·91	
	38	☽ L. L.	7. 34. 43·00	4. 40. 16·65	60. 11. 51·15	W	72. 58. 4·39	17·91	
	39	☽ 1 L.	7. 38. 21·22	4. 40. 25·76	61. 4. 16·80	W	72. 57. 49·01	17·91	77. 54. 21·79
	40	Regulus.		10. 1. 18·57	16. 40. 5·10	E	77. 23. 14·82		334. 49. 16·53
	41	Regulus.		10. 1. 18·57	15. 46. 44·85	E	77. 23. 14·82		336. 5. 44·18
April 9	42	☽ 1 L.	7. 43. 9·77	5. 40. 59·49	48. 7. 19·05	W	71. 50. 42·23	17·74	66. 52. 29·55
	43	☽ L. L.	7. 47. 40·12	5. 41. 10·83	49. 12. 15·45	W	71. 50. 36·30	17·74	
	44	☽ L. L.	7. 51. 18·34	5. 41. 19·98	50. 4. 40·35	W	71. 50. 31·55	17·74	
	45	☽ 1 L.	7. 55. 8·76	5. 41. 29·65	51. 0. 1·05	W	71. 50. 26·57	17·74	69. 39. 55·80
	46	β Leonis		11. 42. 18·09	36. 47. 39·75	E	74. 41. 14·66		307. 16. 54·48
	47	β Leonis		11. 42. 18·09	35. 11. 52·50	E	74. 41. 14·66		309. 7. 16·51
April 10	48	☽ 1 L.	7. 9. 14·33	6. 39. 41·50	25. 55. 42·15	W	71. 53. 26·41	17·65	41. 10. 37·56
	49	☽ L. L.	7. 15. 8·78	6. 39. 56·19	27. 20. 53·10	W	71. 53. 35·51	17·65	
	50	☽ 1 L.	7. 18. 17·92	6. 40. 4·03	28. 6. 20·25	W	71. 53. 40·40	17·65	44. 5. 2·09
	51	☽ L. L.	7. 21. 46·51	6. 40. 12·68	28. 56. 27·90	W	71. 53. 45·82	17·65	
	52	Regulus		10. 1. 18·54	20. 19. 54·30	E	77. 23. 14·70		329. 41. 8·02
	53	Regulus		10. 1. 18·54	19. 11. 22·05	E	77. 23. 14·70		331. 15. 58·04

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
				71. 10. 22·69	14. 50·45	3·5139179	51. 50·55	72. 17. 3·69	3·25	+ 0·44	1
15. 41·84	338. 33. 41·94	43·00	− 1·06								2
				72. 59. 15·12	14. 48·90	3·5131730	52. 15·18	74. 6. 19·20	19·52	− 0·32	3
15. 30·07	335. 8. 39·15	43·55	− 4·40								4
				72. 25. 41·58	14. 48·90	3·5131730	52. 6·27	73. 32. 36·75	36·11	+ 0·64	5
15. 32·87	337. 16. 9·56	15·52	− 5·96								6
		27·30	− 0·92								7
		6·66	+ 0·93								8
15. 20·19	327. 57. 6·89	4·57	+ 2·32								9
				74. 55. 1·93	14. 50·28	3·5138401	52. 48·45	76. 2. 40·66	38·06	+ 2·60	10
15. 22·92	329. 45. 51·19	47·91	+ 3·28								11
				74. 16. 37·62	14. 50·29	3·5138481	52. 39·47	75. 24. 7·38	4·81	+ 2·57	12
		58·68	− 2·32								13
		21·42	+ 2·32								14
15. 23·39	317. 7. 58·90	58·32	+ 0·58								15
				76. 29. 44·09	15. 1·75	3·5194162	53. 50·42	77. 38. 36·26	38·64	− 2·38	16
				75. 52. 16·82	15. 1·79	3·5194334	53. 42·62	77. 1. 1·23	4·69	− 3·46	17
15. 31·02	321. 20. 15·82	11·86	+ 3·96								18
		14·71	+ 0·68								19
		24·03	− 0·32								20
				74. 57. 2·56	15. 11·52	3·5240863	54. 4·95	76. 6. 19·03	19·57	− 0·54	21
				74. 31. 34·06	15. 11·55	3·5241006	53. 58·99	75. 40. 44·60	43·59	+ 1·01	22
15. 46·55	318. 24. 0·61	4·29	− 3·68								23
15. 49·22	319. 34. 22·73	25·33	− 2·60								24
		16·71	+ 0·49								25
		25·11	− 1·24								26
		18·99	+ 1·82								27
		55·29	− 1·43								28
15. 33·17	299. 49. 34·81	34·30	+ 0·51								29
				80. 43. 47·22	15. 22·67	3·5293911	55. 50·22	81. 54. 60·11	59·66	+ 0·45	30
				79. 57. 13·97	15. 22·72	3·5294143	55. 43·63	81. 8. 20·32	16·94	+ 3·38	31
15. 37·85	302. 21. 51·96	51·72	+ 0·24								32
				70. 44. 57·78	16. 21·91	3·5564208	57. 4·36	71. 58. 24·05	26·44	− 2·39	33
17. 15·63	90. 54. 40·86	35·40	+ 5·46								34
17. 6·54	92. 53. 63·22	59·28	+ 3·94								35
											36
19. 25·27	75. 59. 27·04	25·19	+ 1·85								
				57. 48. 48·26	16. 21·13	3·5560773	51. 22·41	58. 56. 31·80	30·62	+ 1·18	37
				58. 19. 7·96	16. 21·13	3·5560749	51. 38·82	59. 27. 7·91	9·47	− 1·56	38
19. 5·87	78. 13. 27·66	28·28	− 0·62								39
		17·62	− 1·09								40
		43·08	+ 1·10								41
											42
21. 10·38	67. 13. 39·93	39·80	+ 0·13								
				50. 54. 41·80	16. 17·77	3·5545888	47. 4·49	51. 58. 4·06	4·15	− 0·09	43
				51. 24. 58·65	16. 17·76	3·5545840	47. 24·03	52. 28. 40·44	42·02	− 1·58	44
20. 40·97	70. 0. 36·77	41·00	− 4·23								45
		54·80	− 0·32								46
		16·89	− 0·38								47
											48
25. 40·24	41. 36. 17·80	16·25	+ 1·55								
				39. 44. 3·65	16. 12·68	3·5523122	38. 43·76	40. 39. 0·09	1·18	− 1·09	49
25. 10·51	44. 30. 12·60	13·94	− 1·34								50
				40. 25. 39·83	16. 12·65	3·5522988	39. 16·68	41. 21. 9·16	9·50	− 0·34	51
		8·14	− 0·12								52
		57·92	+ 0·12								53

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N.P.D. of Center.	Normal-centric Correction to N.P.D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
April 26	1	☽ 2 L.	15. 26. 32·21	20. 33. 59·22	42. 12. 37·50	E	104. 57. 22·69	−16·62	317. 59. 9·49
	2	☽ L. L.	15. 32. 5·58	20. 34. 10·66	40. 51. 54·90	E	104. 56. 51·17	16·62	
April 27	3	☽ L. L.	15. 38. 45·98	21. 23. 47·83	50. 36. 41·85	E	102. 19. 25·12	17·00	
	4	☽ 2 L.	15. 43. 31·07	21. 23. 57·61	49. 27. 40·50	E	102. 18. 50·16	17·00	310. 17. 45·63
	5	☽ L. L.	15. 48. 48·82	21. 24. 8·52	48. 10. 44·85	E	102. 18. 11·16	17·00	
	6	☽ 2 L.	15. 52. 35·65	21. 24. 16·31	47. 15. 49·80	E	102. 17. 43·31	17·00	312. 13. 36·69
	7	α Aquilæ		19. 44. 18·69	20. 42. 51·75	E	81. 28. 49·77		331. 0. 51·66
	8	α Aquilæ		19. 44. 18·69	19. 18. 53·10	E	81. 28. 49·77		332. 51. 7·62
May 5	9	π Leonis		9. 53. 11·99	13. 21. 56·40	W	81. 19. 20·89		19. 8. 18·90
	10	π Leonis		9. 53. 11·99	14. 28. 21·75	W	81. 19. 20·89		20. 40. 8·12
	11	☽ 1 L.	8. 2. 55·44	4. 19. 55·63	98. 58. 6·45	W	73. 30. 34·50	18·23	107. 14. 0·35
	12	☽ L. L.	8. 6. 5·47	4. 20. 3·77	99. 43. 42·60	W	73. 30. 17·39	18·23	
	13	☽ 1 L.	8. 10. 50·85	4. 20. 16·01	100. 52. 11·40	W	73. 29. 51·74	18·23	108. 41. 4·29
May 6	14	☽ L. L.	8. 4. 9·17	5. 22. 10·41	84. 42. 2·10	W	71. 56. 21·97	18·04	
	15	☽ 1 L.	8. 10. 21·63	5. 22. 26·57	86. 11. 22·05	W	71. 56. 7·21	18·04	98. 37. 2·87
	16	☽ L. L.	8. 15. 49·21	5. 22. 40·78	87. 29. 55·95	W	71. 55. 54·29	18·04	
	17	☽ 1 L.	8. 21. 22·01	5. 22. 55·21	88. 49. 45·15	W	71. 55. 41·25	18·04	100. 36. 40·13
	18	Regulus		10. 1. 18·19	21. 15. 55·65	W	77. 23. 12·99		31. 35. 32·09
	19	Regulus		10. 1. 18·19	23. 2. 8·55	W	77. 23. 12·99		33. 58. 41·73
May 7	20	☽ 1 L.	7. 57. 23·36	6. 24. 10·51	68. 29. 25·05	W	71. 37. 3·12	17·91	85. 5. 45·78
	21	☽ L. L.	8. 2. 20·77	6. 24. 23·28	69. 40. 46·95	W	71. 37. 6·91	17·91	
	22	☽ L. L.	8. 7. 52·35	6. 24. 37·54	71. 0. 20·40	W	71. 37. 11·20	17·91	
	23	☽ 1 L.	8. 12. 44·38	6. 24. 50·08	72. 10. 24·75	W	71. 37. 15·06	17·91	88. 2. 38·29
	24	Regulus		10. 1. 18·18	21. 32. 56·85	W	77. 23. 12·92		31. 58. 40·06
	25	Regulus		10. 1. 18·18	23. 0. 32·10	W	77. 23. 12·92		33. 56. 33·00
May 8	26	☽ 1 L.	7. 36. 46·09	7. 24. 24·18	49. 14. 58·65	W	72. 30. 8·28	17·85	67. 28. 4·53
	27	☽ L. L.	7. 43. 21·95	7. 24. 40·72	50. 50. 4·50	W	72. 30. 32·53	17·85	
	28	☽ 1 L.	7. 48. 55·25	7. 24. 54·65	52. 10. 8·85	W	72. 30. 53·00	17·85	70. 14. 57·35
	29	☽ L. L.	7. 52. 59·06	7. 25. 4·82	53. 8. 43·50	W	72. 31. 8·02	17·85	
	30	π Leonis		9. 53. 11·95	17. 26. 13·95	W	81. 19. 20·71		24. 42. 18·93
	31	Bradley 1396		9. 51. 5·71	20. 19. 13·95	W	81. 3. 20·76		28. 38. 56·78
May 9	32	☽ 1 L.	7. 31. 57·12	8. 23. 7·41	34. 20. 52·05	W	74. 28. 30·49	17·84	50. 2. 1·95
	33	☽ L. L.	7. 36. 2·16	8. 23. 17·21	35. 19. 50·70	W	74. 28. 55·58	17·84	
	34	☽ 1 L.	7. 39. 25·86	8. 23. 25·36	36. 8. 52·20	W	74. 29. 16·43	17·84	52. 7. 21·11
	35	☽ L. L.	7. 42. 52·64	8. 23. 33·63	36. 58. 38·55	W	74. 29. 37·62	17·84	
	36	Regulus		10. 1. 18·15	15. 57. 58·35	W	77. 23. 12·78		24. 10. 25·25
	37	Regulus		10. 1. 18·15	18. 24. 41·40	W	77. 23. 12·78		27. 38. 48·46
May 10	38	☽ L. L.	9. 15. 45·74	9. 23. 17·91	46. 18. 47·85	W	77. 33. 29·19	17·85	
	39	☽ 1 L.	9. 19. 36·37	9. 23. 26·66	47. 14. 25·50	W	77. 34. 0·43	17·85	61. 47. 35·76
	40	☽ L. L.	9. 24. 16·61	9. 23. 37·30	48. 22. 1·05	W	77. 34. 38·39	17·85	
	41	☽ 1 L.	9. 27. 28·29	9. 23. 44·57	49. 8. 15·00	W	77. 35. 4·36	17·85	63. 38. 41·00
	42	ℓ Leonis		10. 42. 17·02	30. 59. 51·90	W	78. 45. 16·66		43. 17. 6·43
	43	ℓ Leonis		10. 42. 17·02	32. 18. 57·75	W	78. 45. 16·66		44. 51. 9·38
May 11	44	☽ U. L.	7. 53. 13·62	10. 13. 40·60	14. 0. 50·55	W	80. 51. 24·10	17·84	
	45	☽ 1 L.	8. 1. 8·35	10. 13. 57·83	15. 55. 32·55	W	80. 52. 37·60	17·84	22. 48. 55·22
	46	☽ U. L.	8. 15. 31·56	10. 14. 29·16	19. 24. 6·30	W	80. 54. 51·31	17·84	
	47	☽ 1 L.	8. 24. 53·56	10. 14. 49·55	21. 39. 53·55	W	80. 56. 18·44	17·84	30. 27. 40·83
	48	Regulus		10. 1. 18·12	34. 3. 51·15	W	77. 23. 12·64		47. 45. 6·40
	49	Regulus		10. 1. 18·12	36. 11. 21·00	W	77. 23. 12·64		50. 11. 38·19
May 17	50	Regulus		10. 1. 18·04	18. 26. 6·60	W	77. 23. 12·28		27. 40. 48·24
	51	Regulus		10. 1. 18·04	19. 29. 39·45	W	77. 23. 12·28		29. 9. 28·27
	52	☽ 1 L.	7. 44. 11·97	15. 6. 49·22	55. 37. 15·60	E	103. 8. 36·48	16·66	305. 25. 44·18
	53	☽ U. L.	7. 48. 7·27	15. 6. 57·16	54. 40. 15·45	E	103. 9. 3·47	−16·66	

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
15. 28·41	317. 43. 41·08	46·17	− 5·09								1
				75. 19. 27·50	15. 0·95	3·5190283	53. 32·31	76. 27. 60·76	59·78	+ 0·98	2
				77. 20. 14·48	15. 10·89	3·5237897	54. 33·43	78. 29. 58·80	60·87	− 2·07	3
15. 35·19	310. 2. 10·44	12·39	− 1·95								4
				76. 9. 53·79	15. 10·97	3·5238261	54. 19·33	77. 19. 24·09	27·62	− 3·53	5
15. 39·45	311. 57. 57·24	60·46	− 3·22								6
		50·61	+ 1·05								7
		8·66	− 1·04								8
		22·75	− 3·85								9
		4·26	+ 3·86								10
16. 43·46	107. 30. 43·81	43·44	+ 0·37								11
				83. 1. 59·44	16. 35·56	3·5624420	60. 33·49	84. 19. 8·49	13·75	− 5·26	12
16. 41·11	108. 57. 45·40	44·31	+ 1·09								13
				72. 42. 15·54	16. 33·84	3·5617038	58. 23·17	73. 57. 12·55	12·41	+ 0·14	14
17. 15·36	98. 54. 18·23	18·90	− 0·67								15
				74. 25. 18·69	16. 33·81	3·5616906	58. 51·83	75. 40. 44·33	47·91	− 3·58	16
17. 7·23	100. 53. 47·36	47·68	− 0·32								17
		33·85	− 1·76								18
		40·01	+ 1·72								19
18. 34·84	85. 24. 20·62	22·14	− 1·52								20
				63. 7. 35·67	16. 28·32	3·5592480	54. 26·31	64. 18. 30·30	31·67	− 1·37	21
				63. 57. 6·64	16. 28·30	3·5592360	54. 48·66	65. 8. 23·60	22·42	+ 1·18	22
18. 12·76	88. 20. 51·05	53·99	− 2·94								23
		40·24	− 0·18								24
		32·76	+ 0·24								25
20. 52·09	67. 48. 56·62	57·64	− 1·02								26
				52. 23. 3·31	16. 19·83	3·5554985	48. 7·03	53. 27. 30·17	29·58	+ 0·59	27
20. 23·52	70. 35. 20·87	25·25	− 4·38								28
				53. 44. 42·25	16. 19·77	3·5554707	48. 57·36	54. 49. 59·38	59·14	+ 0·24	29
		19·87	− 0·94								30
		55·84	+ 0·94								31
22. 45·96	50. 24. 47·91	47·29	+ 0·62								32
				45. 39. 22·47	16. 9·33	3·5508451	43. 4·85	46. 38. 36·65	32·07	+ 4·58	33
22. 25·42	52. 29. 46·53	47·02	− 0·49								34
				46. 28. 32·86	16. 9·28	3·5508206	43. 39·83	47. 28. 21·97	23·97	− 2·00	35
		27·39	− 2·14								36
		46·31	+ 2·15								37
				53. 56. 4·34	15. 57·21	3·5453431	47. 55·51	54. 59. 57·06	57·85	− 0·79	38
19. 35·86	62. 7. 11·62	9·64	+ 1·98								39
				55. 4. 42·87	15. 57·14	3·5453121	48. 35·29	56. 9. 15·30	14·30	+ 1·00	40
19. 20·57	63. 57. 61·57	58·65	+ 2·92								41
		6·46	− 0·03								42
		9·35	+ 0·03								43
				43. 51. 49·55	15. 46·41	3·5404232	40. 22·74	44. 16. 25·88	22·14	+ 3·74	44
22. 33·77	23. 11. 28·99	32·14	− 3·15								45
				45. 16. 34·31	15. 46·24	3·5403429	41. 23·45	45. 42. 11·52	2·07	+ 9·45	46
21. 55·00	30. 49. 35·83	37·41	− 1·58								47
		3·45	+ 2·95								48
		41·13	− 2·94								49
		46·64	+ 1·60								50
		30·36	− 2·09								51
15. 7·78	305. 40. 51·96	51·52	+ 0·44								52
				80. 3. 0·91	14. 55·92	3·5165795	54. 2·08	80. 42. 7·07	8·24	− 1·17	53

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N. P. D. of Center.	Normal-centric Correction to N. P. D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
June 6	1	☽ L. L.	8. 57. 47·25	9. 6. 18·40	72. 40. 3·75	W	76. 20. 54·60	−18·10	
	2	☽ 1 L.	9. 0. 31·34	9. 6. 24·92	73. 19. 34·20	W	76. 21. 15·98	18·10	85. 37. 45·55
	3	α Serpentis		15. 37. 45·34	23. 9. 41·70	E	83. 9. 11·61		328. 36. 21·00
	4	α Serpentis		15. 37. 45·34	21. 44. 55·35	E	83. 9. 11·61		330. 23. 9·02
June 8	5	☽ 1 L.	6. 56. 7·07	10. 50. 29·99	18. 5. 24·15	W	83. 20. 29·80	17·97	24. 50. 6·62
	6	☽ 1 L.	7. 53. 4·81	10. 52. 32·69	31. 51. 30·15	W	83. 30. 1·39	17·97	41. 38. 54·26
	7	☽ L. L.	8. 30. 32·10	10. 53. 53·22	40. 54. 43·80	W	83. 36. 17·84	17·97	
	8	☽ L. L.	8. 34. 22·74	10. 54. 1·49	41. 50. 28·80	W	83. 36. 56·49	17·97	
	9	β Leonis		11. 42. 17·53	30. 46. 29·55	W	74. 41. 8·94		45. 34. 0·83
	10	β Leonis		11. 42. 17·53	34. 31. 11·25	W	74. 41. 8·94		50. 5. 10·44
June 9	11	☽ U. L.	8. 8. 58·85	11. 43. 40·01	24. 2. 58·35	W	87. 37. 49·66	17·81	
	12	☽ U. L.	8. 14. 5·06	11. 43. 50·57	25. 17. 5·70	W	87. 38. 42·19	17·81	
	13	☽ 1 L.	8. 17. 46·72	11. 43. 58·20	26. 10. 45·30	W	87. 39. 20·22	17·81	33. 6. 30·43
	14	☽ 1 L.	8. 23. 3·60	11. 44. 9·11	27. 27. 27·90	W	87. 40. 14·60	17·81	34. 34. 55·73
	15	β Leonis		11. 42. 17·52	30. 12. 42·15	W	74. 41. 8·86		44. 52. 0·41
	16	β Leonis		11. 42. 17·52	32. 17. 15·15	W	74. 41. 8·86		47. 25. 14·35
June 10	17	☽ 1 L.	7. 53. 1·46	12. 32. 2·00	8. 56. 36·75	W	91. 40. 24·71	17·59	11. 7. 8·96
	18	☽ U. L.	7. 57. 59·81	12. 32. 12·01	10. 8. 54·15	W	91. 41. 14·81	17·59	
	19	☽ 1 L.	8. 4. 11·81	12. 32. 24·50	11. 39. 1·95	W	91. 42. 17·29	17·59	14. 25. 53·07
	20	☽ U. L.	8. 9. 31·83	12. 32. 35·23	12. 56. 34·50	W	91. 43. 11·03	17·59	
	21	β Leonis		11. 42. 17·51	27. 7. 43·50	W	74. 41. 8·78		40. 56. 11·00
	22	β Leonis		11. 42. 17·51	28. 27. 57·45	W	74. 41. 8·78		42. 39. 41·80
June 11	23	☽ U. L.	6. 50. 10·20	13. 17. 55·09	17. 17. 55·05	E	95. 25. 50·06	17·33	
	24	☽ U. L.	6. 54. 59·59	13. 18. 4·68	16. 7. 46·20	E	95. 26. 35·91	17·33	
	25	☽ 1 L.	6. 58. 15·24	13. 18. 11·16	15. 20. 20·55	E	95. 27. 6·90	17·33	341. 59. 40·72
	26	☽ 1 L.	7. 2. 20·13	13. 18. 19·27	14. 20. 58·80	E	95. 27. 45·69	17·33	343. 8. 1·21
	27	Regulus		10. 1. 17·75	36. 13. 3·45	W	77. 23. 10·89		50. 13. 35·51
	28	Regulus		10. 1. 17·75	37. 20. 4·50	W	77. 23. 10·89		51. 29. 1·73
June 12	29	☽ U. L.	8. 15. 29·91	14. 8. 23·77	7. 32. 30·90	E	99. 15. 40·63	17·00	
	30	☽ 1 L.	8. 18. 57·99	14. 8. 30·67	6. 42. 4·80	E	99. 16. 10·16	17·00	352. 26. 4·15
	31	☽ U. L.	8. 24. 8·50	14. 8. 40·95	5. 26. 48·45	E	99. 16. 54·19	17·00	
	32	☽ 1 L.	8. 34. 47·18	14. 9. 2·09	2. 51. 59·25	E	99. 18. 24·68	17·00	356. 45. 35·99
June 13	33	☽ U. L.	11. 25. 2·09	15. 2. 33·75	27. 24. 57·45	W	102. 48. 10·59	16·66	
	34	☽ 1 L.	11. 30. 50·26	15. 2. 45·40	28. 49. 19·50	W	102. 48. 51·63	16·66	30. 14. 16·57
	35	☽ U. L.	12. 0. 15·20	15. 3. 44·39	35. 57. 1·20	W	102. 52. 19·09	16·66	
	36	☽ 1 L.	12. 9. 7·48	15. 4. 2·19	38. 6. 0·30	W	102. 53. 21·48	16·66	39. 8. 29·95
June 14	37	☽ 1 L.	9. 44. 15·17	15. 47. 34·83	8. 7. 2·40	E	105. 10. 20·22	16·39	351. 29. 14·20
	38	☽ 1 L.	9. 54. 48·41	15. 47. 56·24	5. 33. 39·00	E	105. 11. 19·55	16·39	354. 9. 42·69
	39	α Serpentis		15. 37. 45·35	4. 29. 12·75	W	83. 9. 10·53		6. 19. 49·40
	40	α Serpentis		15. 37. 45·35	8. 54. 0·60	W	83. 9. 10·53		12. 29. 42·09
	41	☽ U. L.	10. 59. 0·41	15. 50. 6·58	9. 59. 24·00	W	105. 17. 17·69	16·39	
	42	☽ U. L.	11. 13. 1·22	15. 50. 35·03	13. 23. 2·55	W	105. 18. 35·23	16·39	
June 16	43	☽ 1 L.	9. 49. 15·80	17. 26. 21·15	29. 34. 58·80	E	108. 14. 5·06	16·05	330. 51. 35·30
	44	☽ U. L.	9. 53. 13·78	17. 26. 29·38	28. 37. 22·65	E	108. 14. 12·59	16·05	
	45	☽ 1 L.	9. 58. 1·47	17. 26. 39·34	27. 27. 45·00	E	108. 14. 21·67	16·05	332. 51. 11·92
	46	☽ U. L.	10. 3. 47·72	17. 26. 51·31	26. 3. 56·55	E	108. 14. 32·56	16·05	
	47	α Serpentis		15. 37. 45·35	6. 36. 55·05	W	83. 9. 10·27		9. 18. 53·11
	48	α Serpentis		15. 37. 45·35	8. 36. 0·15	W	83. 9. 10·27		12. 4. 44·19
June 17	49	☽ U. L.	11. 12. 21·88	18. 19. 7·37	20. 57. 27·75	E	108. 35. 10·94	16·01	
	50	☽ 2 L.	11. 18. 32·15	18. 19. 20·21	19. 27. 51·15	E	108. 35. 9·38	16·01	340. 36. 54·91
	51	☽ U. L.	11. 23. 18·37	18. 19. 30·14	18. 18. 34·95	E	108. 35. 8·14	16·01	
	52	☽ 2 L.	11. 26. 51·78	18. 19. 37·53	17. 26. 55·95	E	108. 35. 7·19	−16·01	342. 34. 51·97

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
				68. 35. 28·95	16. 15·12	3·5534044	55. 56·12	69. 47. 40·19	40·59	− 0·40	1
17. 23·91	85. 55. 9·46	12·53	− 3·07								2
		20·91	+ 0·09								3
		9·11	− 0·09								4
21. 30·13	25. 11. 36·75	37·48	− 0·73								5
19. 59·79	41. 58. 54·05	51·81	+ 2·24								6
				56. 17. 32·63	15. 46·94	3·5406769	48. 44·66	57. 22. 4·23	2·30	+ 1·93	7
				56. 45. 26·94	15. 46·90	3·5406606	48. 59·81	57. 50. 13·65	12·74	+ 0·91	8
		2·03	− 1·20								9
		9·92	+ 0·52								10
				53. 4. 51·39	15. 33·66	3·5345196	45. 55·31	53. 35. 13·04	13·71	− 0·67	11
				53. 29. 41·86	15. 33·62	3·5344980	46. 9·93	54. 0. 18·17	18·76	− 0·59	12
19. 16·17	33. 25. 46·60	42·00	+ 4·60								13
19. 9·45	34. 54. 5·18	3·43	+ 1·75								14
		2·44	− 2·03								15
		11·62	+ 2·73								16
19. 3·00	11. 26. 11·96	16·42	− 4·46								17
				53. 51. 14·11	15. 21·49	3·5288510	45. 46·41	54. 21. 39·03	37·95	+ 1·08	18
18. 57·02	14. 44. 50·09	52·95	− 2·86								19
				54. 18. 56·61	15. 21·40	3·5288085	46. 2·07	54. 49. 37·28	35·92	+ 1·36	20
		10·60	+ 0·40								21
		42·20	− 0·40								22
				58. 48. 3·23	15. 11·57	3·5241082	47. 55·57	59. 20. 47·23	45·54	+ 1·69	23
				58. 34. 9·64	15. 11·53	3·5240926	47. 48·51	59. 6. 46·62	46·25	+ 0·37	24
17. 49·31	342. 17. 30·03	30·54	− 0·51								25
17. 51·30	343. 25. 52·51	51·37	+ 1·14								26
		37·89	− 2·38								27
		1·94	− 0·21								28
				61. 4. 56·73	15. 2·39	3·5197090	48. 31·86	61. 38. 26·20	27·17	− 0·97	29
17. 10·94	352. 43. 15·09	15·28	− 0·19								30
				60. 56. 10·58	15. 2·35	3·5196866	48. 27·66	61. 29. 35·89	36·80	− 0·91	31
17. 12·73	357. 2. 48·72	50·88	− 2·16								32
				68. 32. 28·60	14. 54·87	3·5160663	51. 6·38	69. 8. 40·11	43·56	− 3·45	33
15. 58·03	30. 30. 14·60	11·30	+ 3·30								34
				71. 29. 59·73	14. 54·73	3·5159987	52. 2·37	72. 7. 7·37	8·96	− 1·59	35
15. 38·36	39. 24. 8·31	3·59	+ 4·72								36
16. 6·38	351. 45. 20·58	21·80	− 1·22								37
16. 7·65	354. 25. 50·34	50·57	− 0·23								38
		49·88	− 0·48								39
		39·40	+ 2·69								40
				67. 19. 39·70	14. 50·01	3·5137302	50. 24·41	67. 55. 14·10	16·80	− 2·70	41
				67. 47. 44·98	14. 49·97	3·5137102	50. 34·25	68. 23. 29·26	32·29	− 3·03	42
15. 18·53	331. 6. 53·83	51·51	+ 2·32								43
				74. 4. 7·09	14. 45·03	3·5112597	52. 10·11	74. 41. 32·17	34·67	− 2·50	44
15. 21·35	333. 6. 33·27	29·89	+ 3·38								45
				73. 21. 0·23	14. 45·03	3·5112570	51. 59·04	73. 58. 14·24	15·09	− 0·85	46
		52·79	+ 0·32								47
		44·14	+ 0·05								48
				72. 25. 21·05	14. 44·62	3·5110722	51. 42·73	73. 2. 19·16	19·65	− 0·49	49
15. 29·04	340. 21. 25·87	28·13	− 2·26								50
				71. 52. 11·87	14. 44·63	3·5110748	51. 33·44	72. 29. 0·68	1·38	− 0·70	51
15. 31·14	342. 19. 20·83	20·40	+ 0·43								52

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N.P.D. of Center.	Normal-centric Correction to N.P.D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
July 5	1	Arcturus		14. 9. 37·27	28. 39. 4·95	W	70. 7. 20·59		
	2	Arcturus		14. 9. 37·27	29. 49. 21·90	W	70. 7. 20·59		
July 6	3	Arcturus		14. 9. 37·26	38. 47. 0·75	W	70. 7. 20·50		
	4	Arcturus		14. 9. 37·26	39. 57. 44·10	W	70. 7. 20·50		
	5	α Aquilæ		19. 44. 20·31	40. 46. 1·20	E	81. 28. 36·95		
	6	α Aquilæ		19. 44. 20·31	39. 27. 25·95	E	81. 28. 36·95		
July 7	7	☽ I L.	8. 12. 10·89	12. 19. 19·28	43. 32. 11·85	W	90. 20. 57·05	−17·85	50. 20. 51·42
	8	☽ I L.	8. 20. 13·83	12. 19. 35·94	45. 29. 5·85	W	90. 22. 20·83	17·85	52. 13. 49·52
	9	α Serpentis		15. 37. 45·27	2. 7. 28·65	E	83. 9. 7·78		356. 59. 54·33
	10	α Serpentis		15. 37. 45·27	0. 44. 0·45	E	83. 9. 7·78		358. 57. 48·43
	11	☽ L. L.	8. 49. 30·24	12. 20. 36·50	52. 34. 15·75	W	90. 27. 25·43	17·85	
	12	☽ L. L.	8. 54. 5·77	12. 20. 46·00	53. 40. 57·45	W	90. 28. 13·21	17·85	
	13	α Aquilæ		19. 44. 20·33	55. 26. 29·55	E	81. 28. 36·76		
	14	α Aquilæ		19. 44. 20·33	53. 50. 40·50	E	81. 28. 36·76		
	15	Arcturus		14. 9. 37·25	31. 23. 6·60	W	70. 7. 20·41		
	16	Arcturus		14. 9. 37·25	32. 33. 45·90	W	70. 7. 20·41		
July 8	17	α Serpentis		15. 37. 45·26	5. 34. 58·80	W	83. 9. 7·67		7. 52. 10·70
	18	α Serpentis		15. 37. 45·26	6. 54. 59·10	W	83. 9. 7·67		9. 44. 7·17
	19	α Aquilæ		19. 44. 20·34	52. 22. 12·60	E	81. 28. 36·57		
	20	α Aquilæ		19. 44. 20·34	51. 7. 18·90	E	81. 28. 36·57		
	21	☽ I L.	9. 20. 25·26	13. 10. 39·07	48. 47. 47·10	W	94. 35. 51·01	17·53	53. 4. 32·05
	22	☽ L. L.	9. 24. 14·51	13. 10. 46·78	49. 43. 19·50	W	94. 36. 28·44	17·53	
	23	☽ L. L.	9. 27. 48·79	13. 10. 53·99	50. 35. 14·40	W	94. 37. 3·43	17·53	
	24	☽ I L.	9. 30. 54·55	13. 11. 0·24	51. 20. 14·70	W	94. 37. 33·76	17·53	55. 22. 40·44
	25	τ Boötis		13. 40. 57·90	48. 30. 26·55	W	71. 52. 41·05		
	26	τ Boötis		13. 40. 57·90	49. 44. 25·95	W	71. 52. 41·05		
	27	η Boötis		13. 48. 22·54	50. 0. 57·60	W	70. 55. 59·30		
	28	η Boötis		13. 48. 22·54	51. 7. 9·60	W	70. 55. 59·30		
	29	α Delphini		20. 33. 30·30	47. 34. 32·70	E	74. 33. 6·11		
	30	α Delphini		20. 33. 30·30	46. 21. 9·45	E	74. 33. 6·11		
July 9	31	☽ U. L.	8. 0. 48·07	13. 56. 10·12	18. 26. 35·40	W	98. 8. 31·95	17·20	
	32	☽ I L.	8. 4. 27·24	13. 56. 17·41	19. 19. 42·75	W	98. 9. 4·50	17·20	21. 48. 8·59
	33	☽ U. L.	8. 12. 26·81	13. 56. 33·40	21. 15. 56·10	W	98. 10. 15·73	17·20	
	34	☽ I L.	8. 15. 19·55	13. 56. 39·16	21. 57. 47·85	W	98. 10. 41·37	17·20	24. 38. 59·95
	35	α Serpentis		15. 37. 45·26	2. 2. 49·35	E	83. 9. 7·56		357. 6. 28·62
	36	α Serpentis		15. 37. 45·26	0. 49. 34·05	E	83. 9. 7·56		358. 49. 57·02
	37	α Aquilæ		19. 44. 20·36	60. 22. 44·55	E	81. 28. 36·38		
	38	α Aquilæ		19. 44. 20·36	59. 22. 34·80	E	81. 28. 36·38		
	39	η Boötis		13. 48. 22·53	31. 49. 29·10	W	70. 55. 59·21		
	40	η Boötis		13. 48. 22·53	34. 1. 27·00	W	70. 55. 59·21		
July 10	41	☽ U. L.	9. 10. 1·80	14. 46. 26·07	24. 13. 1·20	W	101. 37. 16·29	16·83	
	42	☽ U. L.	9. 13. 47·40	14. 46. 33·59	25. 7. 41·55	W	101. 37. 44·98	16·83	28. 2. 52·55
	43	☽ I L.	9. 18. 23·49	14. 46. 42·80	26. 14. 36·15	W	101. 38. 20·06	16·83	29. 3. 59·06
	44	☽ I L.	9. 22. 33·40	14. 46. 51·14	27. 15. 9·90	W	101. 38. 51·81	16·83	21. 54. 12·13
	45	α Serpentis		15. 37. 45·25	15. 49. 3·45	W	83. 9. 7·45		23. 28. 28·37
	46	α Serpentis		15. 37. 45·25	17. 0. 12·90	W	83. 9. 7·45		
	47	Arcturus		14. 9. 37·21	42. 19. 2·40	W	70. 7. 20·14		
	48	Arcturus		14. 9. 37·21	43. 21. 54·90	W	70. 7. 20·14		
	49	α Aquilæ		19. 44. 20·37	38. 52. 44·25	E	81. 28. 36·19		
	50	α Aquilæ		19. 44. 20·37	37. 53. 40·50	E	81. 28. 36·19		
July 11	51	☽ I L.	9. 39. 15·91	15. 35. 36·76	20. 14. 12·75	W	104. 26. 3·96	16·51	21. 8. 42·65
	52	☽ U. L.	9. 44. 41·87	15. 35. 47·73	21. 33. 11·10	W	104. 26. 37·16	16·51	
	53	☽ I L.	9. 48. 52·03	15. 35. 56·15	22. 33. 47·40	W	104. 27. 2·62	16·51	23. 29. 19·68
	54	☽ U. L.	9. 54. 1·54	15. 36. 6·55	23. 48. 46·80	W	104. 27. 34·09	−16·51	
	55	α Serpentis		15. 37. 45·24	24. 57. 7·05	W	83. 9. 7·35		33. 37. 1·09
	56	α Serpentis		15. 37. 45·24	27. 2. 43·05	W	83. 9. 7·35		36. 10. 1·52

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
				38. 44. 18·09					19·31	− 1·22	1
				39. 16. 14·88					15·31	− 0·43	2
				43. 43. 52·38					52·72	− 0·34	3
				44. 21. 40·14					36·82	+ 3·32	4
				54. 22. 36·27					34·17	+ 2·10	5
				53. 44. 4·98					4·50	+ 0·48	6
17. 24·87	50. 38. 16·29	19·03	− 2·74								7
17. 16·19	52. 31. 5·71	10·60	− 4·89								8
		55·06	− 0·73								9
		47·69	+ 0·74								10
				68. 8. 20·77	15. 34·91	3·5351235	53. 27·21	69. 17. 22·89	20·58	+ 2·31	11
				68. 44. 44·77	15. 34·87	3·5350893	53. 39·68	69. 53. 59·32	54·76	+ 4·56	12
				62. 16. 2·39					5·27	− 2·88	13
				61. 21. 25·84					25·97	− 0·13	14
				40. 0. 3·91					3·55	+ 0·36	15
				40. 33. 57·45					60·52	− 3·07	16
		10·47	+ 0·23								17
		7·63	− 0·46								18
				60. 31. 34·51					36·19	− 1·68	19
				59. 49. 49·21					46·55	+ 2·66	20
16. 21·19	53. 20. 53·24	54·74	− 1·50								21
				70. 12. 36·79	15. 20·97	3·5285657	53. 20·15	71. 21. 17·91	17·69	+ 0·22	22
				70. 39. 22·60	15. 20·94	3·5285515	53. 28·39	71. 48. 11·93	11·02	+ 0·91	23
16. 13·14	55. 38. 53·58	53·25	+ 0·33								24
				50. 32. 30·63					30·68	− 0·05	25
				51. 15. 11·07					12·53	− 1·46	26
				50. 39. 60·23					59·97	+ 0·26	27
				51. 18. 44·39					44·56	− 0·17	28
				52. 9. 55·48					55·18	+ 0·30	29
				51. 28. 57·68					59·81	− 2·13	30
				61. 41. 46·40	15. 9·95	3·5233413	49. 13·38	62. 15. 49·83	50·42	− 0·59	31
17. 10·85	22. 5. 19·44	21·99	− 2·55								32
				62. 23. 35·57	15. 9·86	3·5232995	49. 31·91	62. 57. 57·62	59·29	− 1·67	33
17. 4·41	24. 56. 4·36	8·90	− 4·54								34
		28·58	+ 0·04								35
		56·70	+ 0·32								36
				65. 8. 26·36					27·72	− 1·36	37
				64. 32. 61·72					59·92	+ 1·80	38
				40. 54. 37·02					35·98	+ 1·04	39
				41. 58. 24·49					24·97	− 0·48	40
				66. 29. 38·26	15. 0·07	3·5186005	50. 40·15	67. 5. 18·34	16·83	+ 1·51	41
				66. 45. 15·83	15. 0·05	3·5185899	50. 45·93	67. 21. 1·71	1·08	+ 0·63	42
16. 16·56	28. 19. 9·11	9·26	− 0·15								43
16. 14·33	29. 20. 13·39	11·76	+ 1·63								44
		12·29	− 0·16								45
		28·34	+ 0·03								46
				45. 38. 39·74					40·36	− 0·62	47
				46. 13. 30·70					28·25	+ 2·45	48
				53. 27. 18·12					17·40	+ 0·72	49
				52. 59. 5·85					5·05	+ 0·80	50
16. 1·03	21. 24. 43·68	43·34	+ 0·34								51
				68. 32. 13·82	14. 52·97	3·5151447	50. 59·75	69. 8. 20·60	20·47	+ 0·13	52
15. 57·25	23. 45. 16·93	19·05	− 2·12								53
				69. 6. 58·19	14. 52·93	3·5151261	51. 11·31	69. 43. 16·57	17·83	− 1·26	54
		0·42	+ 0·67								55
		2·19	− 0·67								56

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N. P. D. of Center.	Normal-centric Correction to N. P. D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
Aug. 4	1	☽ I L.	8. 15. 59·05	12. 52. 11·17	63. 52. 18·60	W	92. 53. 36·67	−17·87	67. 16. 41·83
	2	☽ L. L.....	8. 26. 28·22	12. 52. 33·05	66. 24. 33·75	W	92. 55. 24·82	17·87	
	3	α Ophiuchi		17. 28. 48·03	13. 26. 10·35	W	77. 20. 10·92		20. 30. 52·32
	4	α Ophiuchi		17. 28. 48·03	14. 49. 10·95	W	77. 20. 10·92		22. 32. 11·63
Aug. 6	5	☽ L. L.....	8. 32. 30·16	14. 31. 10·70	45. 14. 9·60	W	100. 25. 56·42	17·10	
	6	☽ I L.	8. 36. 27·05	14. 31. 18·71	46. 11. 32·70	W	100. 26. 28·80	17·10	47. 42. 57·35
	7	☽ L. L.....	8. 41. 38·58	14. 31. 29·24	47. 27. 0·45	W	100. 27. 11·34	17·10	
	8	☽ I L.	8. 45. 24·80	14. 31. 36·90	48. 21. 48·00	W	100. 27. 42·22	17·10	49. 39. 29·93
	9	α Aquilæ		19. 44. 20·51	22. 26. 52·80	E	81. 28. 31·64		328. 46. 7·19
	10	α Aquilæ		19. 44. 20·51	21. 9. 25·65	E	81. 28. 31·64		330. 26. 8·65
Aug. 8	11	☽ I L.	7. 34. 7·38	16. 6. 42·27	8. 41. 27·30	W	105. 42. 14·55	16·43	9. 3. 7·96
	12	☽ U. L.....	7. 40. 56·50	16. 6. 56·19	10. 20. 31·95	W	105. 42. 49·40	16·43	
	13	☽ I L.	7. 51. 30·34	16. 7. 17·75	12. 54. 2·25	W	105. 43. 43·28	16·43	13. 23. 19·67
	14	☽ U. L.....	7. 56. 25·03	16. 7. 27·78	14. 5. 24·15	W	105. 44. 8·28	16·43	
	15	α Serpentis.....		15. 37. 44·90	23. 27. 51·45	W	83. 9. 5·11		31. 46. 24·00
	16	α Serpentis		15. 37. 44·90	24. 41. 54·60	W	83. 9. 5·11		33. 18. 17·78
Aug. 9	17	α Serpentis		15. 37. 44·89	13. 17. 14·10	W	83. 9. 5·05		18. 30. 25·84
	18	α Serpentis		15. 37. 44·89	14. 17. 3·00	W	83. 9. 5·05		19. 51. 7·81
	19	☽ I L.	8. 27. 24·65	16. 57. 43·40	10. 16. 49·05	W	107. 26. 2·92	16·19	10. 28. 26·88
	20	☽ I L.....	8. 31. 1·05	16. 57. 50·82	11. 9. 12·60	W	107. 26. 14·45	16·19	11. 21. 21·84
	21	☽ U. L.....	8. 34. 51·83	16. 57. 58·74	12. 5. 4·95	W	107. 26. 26·74	16·19	
	22	☽ U. L.	8. 39. 35·44	16. 58. 8·47	13. 13. 44·85	W	107. 26. 41·80	16·19	
Aug. 10	23	☽ U. L.....	7. 43. 34·34	17. 45. 48·48	11. 44. 41·55	E	108. 18. 27·98	16·08	
	24	☽ U. L.....	7. 48. 58·98	17. 45. 59·68	10. 26. 6·60	E	108. 18. 34·96	16·08	
	25	☽ I L.	7. 54. 6·12	17. 46. 10·31	9. 11. 46·50	E	108. 18. 41·51	16·08	350. 43. 21·64
	26	☽ I L.	7. 59. 9·17	17. 46. 20·77	7. 58. 25·05	E	108. 18. 47·93	16·08	351. 57. 2·05
	27	κ Ophiuchi.....		16. 51. 24·51	7. 45. 3·60	W	80. 24. 43·18		11. 22. 52·52
	28	κ Ophiuchi.....		16. 51. 24·51	8. 50. 58·35	W	80. 24. 43·18		12. 58. 19·66
Aug. 11	29	☽ I L.....	7. 25. 46·93	18. 35. 3·53	27. 31. 54·00	E	108. 25. 20·13	16·07	332. 50. 42·38
	30	☽ U. L.	7. 30. 43·54	18. 35. 13·81	26. 20. 6·75	E	108. 25. 16·55	16·07	
	31	☽ U. L.....	7. 35. 52·16	18. 35. 24·52	25. 5. 25·50	E	108. 25. 12·82	16·07	
	32	☽ I L.....	7. 38. 34·05	18. 35. 30·14	24. 26. 14·85	E	108. 25. 10·84	16·07	335. 46. 46·05
	33	α Serpentis		15. 37. 44·86	21. 10. 58·80	W	83. 9. 4·97		28. 53. 44·98
	34	α Serpentis		15. 37. 44·86	22. 4. 36·45	W	83. 9. 4·97		30. 1. 49·14
Aug. 12	35	☽ I L.	7. 38. 48·62	19. 25. 26·53	35. 52. 33·30	E	107. 43. 13·57	16·17	324. 52. 10·33
	36	☽ U. L.	7. 44. 0·43	19. 25. 37·33	34. 37. 5·10	E	107. 42. 59·23	16·17	
	37	☽ I L.....	7. 48. 42·06	19. 25. 47·09	33. 28. 55·65	E	107. 42. 46·26	16·17	327. 3. 29·87
	38	☽ U. L.....	7. 53. 48·04	19. 25. 57·69	32. 14. 52·35	E	107. 42. 32·13	16·17	
	39	κ Ophiuchi.....		16. 51. 24·48	7. 46. 13·05	W	80. 24. 43·04		11. 24. 33·36
	40	κ Ophiuchi.....		16. 51. 24·48	9. 1. 36·90	W	80. 24. 43·04		13. 13. 41·59
Aug. 13	41	☽ I L.	9. 5. 2·11	20. 18. 9·95	26. 27. 21·45	E	106. 6. 57·30	16·39	333. 9. 26·64
	42	☽ U. L.....	9. 8. 44·61	20. 18. 17·60	25. 33. 29·55	E	106. 6. 39·52	16·39	
	43	☽ I L.....	9. 12. 8·77	20. 18. 24·63	24. 44. 4·20	E	106. 6. 23·20	16·39	334. 49. 47·17
	44	☽ U. L.	9. 16. 8·99	20. 18. 32·89	23. 45. 55·05	E	106. 6. 3·98	16·39	
	45	α Aquilæ		19. 44. 20·49	14. 8. 29·70	E	81. 28. 30·67		339. 50. 6·00
	46	α Aquilæ		19. 44. 20·49	12. 53. 17·40	E	81. 28. 30·67		341. 34. 7·66
Aug. 14	47	κ Ophiuchi.....		16. 51. 24·45	8. 11. 23·10	W	80. 24. 42·90		12. 1. 3·42
	48	κ Ophiuchi.....		16. 51. 24·45	9. 31. 10·05	W	80. 24. 42·90		13. 56. 17·36
	49	☽ I L.....	8. 3. 27·33	21. 5. 25·74	52. 43. 23·40	E	103. 57. 25·71	16·65	308. 18. 26·98
	50	☽ U. L.	8. 8. 3·76	21. 5. 35·18	51. 36. 27·15	E	103. 56. 55·97	16·65	
	51	☽ I L.....	8. 22. 20·79	21. 6. 4·44	48. 8. 55·50	E	103. 55. 23·62	16·65	312. 14. 20·16
	52	☽ U. L.	8. 26. 17·18	21. 6. 12·50	47. 11. 40·80	E	103. 54. 58·31	−16·65	

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
16. 3·54	67. 32. 45·37	46·95	− 1·58								1
				77. 55. 50·31	15. 37·08	3·5361116	56. 14·93	79. 7. 42·32	40·45	+ 1·87	2
		52·00	+ 0·32								3
		11·94	− 0·31								4
				73. 9. 27·00	15. 10·70	3·5237103	53. 35·32	74. 18. 13·02	13·41	− 0·39	5
15. 48·73	47. 58. 46·08	43·94	+ 2·14								6
				74. 11. 53·56	15. 10·63	3·5236764	53. 51·02	75. 20. 55·21	56·07	− 0·86	7
15. 43·80	49. 55. 13·73	13·16	+ 0·57								8
		7·08	+ 0·11								9
		9·39	− 0·74								10
											11
16. 6·12	9. 19. 14·08	19·17	− 5·09								
				67. 47. 25·82	14. 53·77	3·5155534	50. 47·08	68. 23. 19·13	19·60	− 0·47	12
16. 2·39	13. 39. 22·06	24·55	− 2·49								13
				68. 19. 28·88	14. 53·70	3·5155215	50. 58·06	68. 55. 33·24	36·44	− 3·20	14
		24·22	− 0·22								15
		18·51	− 0·73								16
											17
		24·05	+ 1·79								
		8·03	− 0·22								18
15. 48·58	10. 44. 15·46	14·76	+ 0·70								19
15. 47·91	11. 37. 9·75	9·81	− 0·06								20
				69. 43. 11·52	14. 48·98	3·5131873	51. 9·37	70. 19. 31·91	32·21	− 0·30	21
				69. 52. 58·14	14. 48·97	3·5131819	51. 12·46	70. 29. 21·63	22·40	− 0·77	22
				70. 32. 4·52	14. 46·89	3·5121894	51. 17·63	71. 8. 35·26	34·01	+ 1·25	23
				70. 22. 42·36	14. 46·88	3·5121881	51. 14·73	70. 59. 10·21	8·32	+ 1·89	24
15. 41·74	350. 59. 3·38	4·00	− 0·62								25
15. 42·40	352. 12. 44·45	43·88	+ 0·57								26
		52·89	− 0·37								27
		19·02	+ 0·64								28
											29
15. 22·56	333. 6. 4·94	4·20	+ 0·74								
				73. 35. 41·32	14. 47·07	3·5122564	52. 10·08	74. 13. 4·33	5·73	− 1·40	30
				73. 15. 39·07	14. 47·07	3·5122578	52. 4·86	73. 52. 56·86	59·68	− 2·82	31
15. 26·59	336. 2. 12·64	12·92	− 0·28								32
		44·26	+ 0·72								33
		50·12	− 0·98								34
											35
15. 16·01	325. 7. 26·34	31·29	− 4·95								
				75. 30. 28·98	14. 49·19	3·5133155	52. 45·70	76. 8. 25·49	25·28	+ 0·21	36
15. 19·51	327. 18. 49·38	54·71	− 5·33								37
				74. 41. 57·53	14. 49·21	3·5133263	52. 34·40	75. 19. 42·72	45·08	− 2·36	38
		33·28	+ 0·08								39
		41·67	− 0·08								40
											41
15. 41·89	333. 25. 8·53	10·64	− 2·11								
				71. 10. 7·51	14. 53·36	3·5153306	51. 51·63	71. 47. 5·78	3·75	+ 2·03	42
15. 44·61	335. 5. 31·78	33·92	− 2·14								43
				70. 41. 8·18	14. 53·39	3·5153425	51. 42·94	71. 17. 57·73	56·80	+ 0·93	44
		5·03	+ 0·97								45
		8·62	− 0·96								46
											47
		3·51	− 0·09								
		17·26	+ 0·10								48
15. 12·30	308. 33. 39·28	45·42	− 6·14								49
				79. 13. 46·81	14. 58·38	3·5177640	54. 2·97	79. 52. 51·40	52·52	− 1·12	50
15. 19·43	312. 29. 39·59	46·62	− 7·03								51
				77. 7. 55·47	14. 58·45	3·5177996	53. 39·79	77. 46. 36·81	37·33	− 0·52	52

Assumed Colatitude 38°. 31′. 22″·14.

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Comparison of Tabular Azimuths and Zenith Distances with Azimuths and Zenith Distances

Day.	No. for Reference.	Name of Object.	Mean Solar Time. h m s	Tabular R.A. of Center. h m s	Hour Angle. ° ′ ″	Side of Meridian.	Tabular Geocentric N.P.D. of Center. ° ′ ″	Normal-centric Correction to N.P.D. ″	Tabular Normal-centric or Apparent Azimuth of Center. ° ′ ″
Sept. 5	1	☽ L. L.	7. 48. 8·41	16. 40. 54·02	31. 15. 13·35	W	106. 52. 54·92	−16·35	
	2	☽ 1 L.	7. 51. 59·49	16. 41. 2·00	32. 11. 9·45	W	106. 53. 9·91	16·35	32. 2. 22·43
	3	α Aquilæ		19. 44. 20·31	11. 59. 16·35	E	81. 28. 28·23		342. 49. 22·16
	4	α Aquilæ		19. 44. 20·31	10. 41. 8·70	E	81. 28. 28·23		344. 38. 56·49
Sept. 6	5	☽ 1 L.	7. 20. 20·63	17. 29. 40·11	13. 4. 45·15	W	108. 2. 2·07	16·16	13. 12. 1·86
	6	☽ L. L.	7. 24. 19·82	17. 29. 48·39	14. 2. 38·70	W	108. 2. 9·90	16·16	
	7	☽ 1 L.	7. 28. 55·71	17. 29. 57·92	15. 9. 25·35	W	108. 2. 18·89	16·16	15. 16. 1·31
	8	☽ L. L.	7. 33. 6·94	17. 30. 6·62	16. 10. 13·65	W	108. 2. 27·03	16·16	
	9	α Aquilæ		19. 44. 20·29	15. 54. 5·10	E	81. 28. 28·15		337. 25. 35·00
	10	α Aquilæ		19. 44. 20·29	14. 44. 11·55	E	81. 28. 28·15		339. 1. 1·44
Sept. 7	11	☽ U. L.	6. 19. 8·24	18. 17. 23·97	13. 12. 41·25	E	108. 25. 0·51	16·10	
	12	☽ 1 L.	6. 23. 14·25	18. 17. 32·48	12. 13. 8·55	E	108. 25. 0·61	16·10	347. 42. 55·63
	13	☽ U. L.	6. 28. 42·12	18. 17. 43·84	10. 53. 47·40	E	108. 25. 0·72	16·10	
	14	☽ 1 L.	6. 33. 38·70	18. 17. 54·11	9. 42. 0·60	E	108. 25. 0·78	16·10	350. 13. 47·68
	15	α Aquilæ		19. 44. 20·28	29. 45. 16·35	E	81. 28. 28·07		319. 43. 52·59
	16	α Aquilæ		19. 44. 20·28	23. 41. 1·95	E	81. 28. 28·07		327. 11. 29·83
Sept. 8	17	☽ U. L.	7. 17. 22·36	19. 9. 16·95	10. 35. 52·20	E	107. 59. 21·92	16·16	
	18	☽ 1 L.	7. 21. 25·94	19. 9. 25·38	9. 36. 55·05	E	107. 59. 13·48	16·16	350. 15. 51·64
Sept. 10	19	☽ U. L.	7. 1. 45·53	20. 48. 0·33	37. 13. 17·40	E	104. 48. 9·13	16·59	
	20	☽ 1 L.	7. 6. 13·52	20. 48. 9·51	36. 8. 24·15	E	104. 47. 43·00	16·59	323. 28. 27·11
	21	☽ U. L.	7. 9. 58·30	20. 48. 17·21	35. 13. 58·80	E	104. 47. 21·08	16·59	
	22	☽ 1 L.	7. 12. 45·99	20. 48. 22·98	34. 33. 23·10	E	104. 47. 4·71	16·59	324. 57. 10·18
	23	α Aquilæ		19. 44. 20·24	17. 13. 46·05	E	81. 28. 27·87		335. 37. 49·07
	24	α Aquilæ		19. 44. 20·24	15. 21. 56·10	E	81. 28. 27·87		338. 9. 22·80
Sept. 11	25	☽ 1 L.	11. 7. 3·64	21. 45. 37·89	10. 51. 3·75	W	101. 36. 52·74	16·96	11. 51. 41·08
	26	☽ L. L.	11. 11. 35·59	21. 45. 47·16	11. 56. 55·20	W	101. 36. 17·75	16·96	
Sept. 12	27	☽ U. L.	7. 28. 13·71	22. 27. 14·69	53. 25. 28·20	E	98. 48. 6·85	17·25	
	28	☽ 1 L.	7. 31. 20·90	22. 27. 21·08	52. 40. 8·55	E	98. 47. 39·32	17·25	305. 40. 11·91
	29	☽ U. L.	7. 37. 23·86	22. 27. 33·44	51. 12. 14·55	E	98. 46. 45·89	17·25	
	30	☽ 1 L.	7. 40. 15·79	22. 27. 39·30	50. 30. 36·45	E	98. 46. 20·56	17·25	307. 33. 58·48
	31	α Aquilæ		19. 44. 20·21	2. 13. 16·20	W	81. 28. 27·75		3. 13. 20·38
	32	α Aquilæ		19. 44. 20·21	3. 25. 29·55	W	81. 28. 27·75		4. 57. 55·82
Sept. 13	33	☽ U. L.	8. 37. 3·39	23. 18. 42·89	48. 3. 8·25	E	94. 52. 29·57	17·56	
	34	☽ L. L.	8. 41. 18·15	23. 18. 51·59	47. 1. 26·70	E	94. 51. 47·79	17·56	309. 50. 36·69
	35	☽ 1 L.	8. 46. 21·58	23. 19. 1·97	45. 47. 58·50	E	94. 50. 58·01	17·56	310. 24. 6·39
	36	☽ 2 L.	8. 48. 49·39	23. 19. 7·02	45. 12. 11·10	E	94. 50. 33·77	17·56	
	37	☽ U. L.	8. 54. 34·60	23. 19. 18·83	43. 48. 36·00	E	94. 49. 37·12	17·56	
	38	☽ L. L.	8. 59. 4·35	23. 19. 28·06	42. 43. 16·95	E	94. 48. 52·83	17·56	313. 50. 43·71
	39	☽ 1 L.	9. 3. 46·59	23. 19. 37·71	41. 34. 56·55	E	94. 48. 6·49	17·56	314. 24. 14·14
	40	☽ 2 L.	9. 6. 9·77	23. 19. 42·61	41. 0. 16·65	E	94. 47. 42·98	17·56	20. 47. 54·73
	41	α Aquilæ		19. 44. 20·20	14. 36. 7·65	W	81. 28. 27·69		23. 7. 33·78
	42	α Aquilæ		19. 44. 20·20	16. 18. 30·15	W	81. 28. 27·69		
Sept. 14	43	α Aquilæ		19. 44. 20·19	2. 38. 28·80	E	81. 28. 27·63		356. 10. 7·81
	44	α Aquilæ		19. 44. 20·19	1. 30. 17·85	E	81. 28. 27·63		357. 48. 58·20
	45	☽ L. L.	9. 6. 6·52	0. 9. 13·44	52. 24. 39·45	E	90. 44. 7·59	17·79	
	46	☽ 2 L.	9. 8. 53·85	0. 9. 19·23	51. 44. 9·60	E	90. 43. 38·65	17·79	302. 5. 26·98
	47	☽ L. L.	9. 12. 29·64	0. 9. 26·70	50. 51. 55·95	E	90. 43. 1·38	17·79	
	48	☽ 2 L.	9. 16. 49·45	0. 9. 35·69	49. 49. 3·00	E	90. 42. 16·56	17·79	303. 50. 57·93
Sept. 15	49	☽ L. L.	9. 15. 32·06	0. 59. 52·34	61. 43. 28·35	E	86. 32. 27·34	17·92	
	50	☽ 2 L.	9. 19. 28·48	1. 0. 0·70	60. 46. 17·85	E	86. 31. 46·45	17·92	291. 31. 29·35
	51	☽ L. L.	9. 23. 9·90	1. 0. 12·76	59. 23. 43·35	E	86. 30. 47·40	17·92	
	52	☽ 2 L.	9. 28. 40·03	1. 0. 20·18	58. 32. 54·00	E	86. 30. 11·06	−17·92	293. 27. 12·09

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
				73. 35. 54·03	14. 54·70	3·5159867	52. 45·11	74. 43. 33·84	34·51	− 0·67	1
15. 30·61	32. 17. 53·04	55·73	− 2·69								2
		22·45	− 0·29								3
		56·98	− 0·49								4
											5
15. 44·23	13. 27. 46·09	50·86	− 4·77								
				70. 35. 16·19	14. 50·30	3·5138467	51. 39·67	71. 41. 46·16	45·09	+ 1·07	6
15. 42·34	15. 31. 43·65	47·41	− 3·76								7
				70. 56. 24·41	14. 50·28	3·5138373	51. 45·88	72. 3. 0·57	0·50	+ 0·07	8
		35·08	− 0·08								9
		1·36	+ 0·08								10
				70. 50. 27·51	14. 48·58	3·5130237	51. 29·21	71. 27. 8·14	10·63	− 2·51	11
15. 40·89	347. 58. 36·52	37·32	− 0·80								12
				70. 32. 18·05	14. 48·58	3·5130210	51. 23·64	71. 8. 53·11	56·20	− 3·09	13
15. 42·63	350. 29. 30·31	30·07	+ 0·24								14
		53·36	− 0·77								15
		29·05	+ 0·78								16
				70. 4. 44·95	14. 49·56	3·5135026	51. 18·48	70. 41. 13·87	16·38	− 2·51	17
15. 46·27	350. 31. 37·91	40·27	− 2·36								18
				73. 45. 30·82	14. 58·40	3·5177961	52. 52·94	74. 23. 25·36	26·28	− 0·92	19
15. 37·19	323. 44. 4·30	7·64	− 3·34								20
				73. 0. 27·91	14. 58·43	3·5178133	52. 41·12	73. 38. 10·60	11·23	− 0·63	21
15. 40·15	325. 12. 50·33	51·85	− 1·52								22
		48·51	+ 0·56								23
		24·22	− 1·42								24
											25
16. 50·20	12. 8. 31·28	31·88	− 0·60								
				63. 55. 25·36	15. 6·85	3·5218515	50. 14·32	65. 0. 46·53	46·07	+ 0·46	26
				75. 41. 35·61	15. 13·80	3·5251805	54. 16·21	76. 20. 38·02	37·28	+ 0·74	27
15. 44·19	305. 55. 56·10	57·73	− 1·63								28
				74. 33. 17·36	15. 13·85	3·5252065	53. 59·98	75. 12. 3·49	4·57	− 1·08	29
15. 49·18	307. 49. 47·66	49·62	− 1·96								30
		20·15	+ 0·23								31
		55·20	+ 0·62								32
				69. 36. 36·14	15. 22·97	3·5295017	53. 5·13	70. 14. 18·30	17·77	+ 0·53	33
				69. 5. 48·81	15. 23·00	3·5295145	53. 5·45	70. 14. 17·26	17·77	− 0·51	34
16. 31·53	310. 7. 8·22	6·93	+ 1·29								35
16. 33·55	310. 7. 32·84	32·34	+ 0·50								36
				67. 32. 10·63	15. 23·08	3·5295531	52. 21·73	68. 9. 9·28	7·81	+ 1·47	37
				67. 1. 24·12	15. 23·11	3·5295660	52. 22·06	69. 9. 9·29	7·81	+ 1·48	38
16. 46·09	314. 7. 29·80	28·91	+ 0·89								39
16. 48·13	314. 7. 26·01	28·65	− 2·64								40
		55·09	− 0·36								41
		33·41	+ 0·37								42
		8·18	− 0·37								43
		58·55	− 0·35								44
				68. 17. 22·71	15. 31·86	3·5336909	53. 19 75	69. 26. 14·32	10·26	+ 4·06	45
16. 45·03	301. 48. 41·95	44·33	− 2·38								46
				67. 27. 33·78	15. 31·90	3·5337088	53. 2·04	68. 36. 7·72	4·45	+ 3·27	47
16. 52·57	303. 34. 5·36	7·13	− 1·77								48
				70. 0. 54·35	15. 40·28	3·5375990	54. 24·08	71. 10. 58·71	56·79	+ 1·92	49
16. 43·64	291. 14. 45·71	46·11	− 0·40								50
				68. 38. 41·16	15. 40·34	3·5376268	53. 56·59	69. 48. 18·09	16·28	+ 1·81	51
16. 52·59	293. 10. 19·50	21·06	− 1·56								52

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N. P. D. of Center.	Normal-centric Correction to N. P. D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
Oct. 1	1	☽ 1 L.	5. 46. 56·60	15. 29. 5·77	44. 26. 56·55	W	103. 53. 30·51	−16·87	44. 30. 16·31
	2	☽ L. L.	5. 51. 10·76	15. 29. 14·64	45. 28. 26·25	W	103. 53. 58·63	16·87	
	3	☽ 1 L.	5. 55. 17·27	15. 29. 23·21	46. 28. 5·55	W	103. 54. 25·88	16·87	46. 17. 30·12
	4	☽ L. L.	5. 59. 15·55	15. 29. 31·53	47. 25. 44·70	W	103. 54. 52·20	16·87	
	5	α Aquilæ		19. 44. 19·92	13. 51. 10·50	E	81. 28. 26·96		340. 13. 57·61
	6	α Aquilæ		19. 44. 19·92	11. 51. 1·35	E	81. 28. 26·96		343. 0. 53·67
Oct. 3	7	☽ 1 L.	6. 17. 38·36	17. 10. 31·97	28. 45. 22·20	W	107. 43. 54·51	16·26	28. 31. 44·86
	8	☽ L. L.	7. 16. 16·86	17. 12. 34·49	42. 56. 46·50	W	107. 46. 34·29	16·26	
	9	ε Pegasi		21. 37. 42·09	24. 45. 8·40	W	80. 43. 35·45		34. 31. 6·67
	10	ε Pegasi		21. 37. 42·09	26. 21. 48·15	W	80. 43. 35·45		36. 32. 14·95
Oct. 5	11	☽ L. L.	6. 58. 52·35	18. 52. 0·18	15. 41. 47·10	W	108. 17. 40·16	16·12	
	12	☽ 1 L.	7. 3. 59·73	18. 52. 10·71	16. 56. 12·45	W	108. 17. 33·09	16·12	16. 58. 34·83
	13	☽ L. L.	7. 9. 28·87	18. 52. 22·20	18. 15. 50·70	W	108. 17. 25·48	16·12	
	14	☽ 1 L.	7. 13. 58·01	18. 52. 31·50	19. 20. 59·25	W	108. 17. 19·24	16·12	19. 20. 28·97
	15	α Aquilæ		19. 44. 19·84	7. 58. 12·30	W	81. 28. 26·92		11. 30. 4·87
	16	α Aquilæ		19. 44. 19·84	9. 17. 11·40	W	81. 28. 26·92		13. 22. 26·04
Oct. 7	17	☽ 1 L.	5. 11. 47·12	20. 27. 16·92	32. 59. 49·80	E	105. 46. 56·15	16·44	326. 47. 49·95
	18	☽ U. L.	5. 16. 7·06	20. 27. 25·80	31. 56. 53·40	E	105. 46. 34·14	16·44	
	19	☽ 1 L.	5. 19. 30·91	20. 27. 32·76	31. 7. 31·50	E	105. 46. 16·87	16·44	328. 33. 43·64
	20	☽ U. L.	5. 23. 53·46	20. 27. 41·72	30. 3. 57·00	E	105. 45. 54·59	16·44	
	21	α Aquilæ		19. 44. 19·81	17. 38. 2·85	E	81. 28. 26·90		335. 5. 12·27
	22	α Aquilæ		19. 44. 19·81	16. 26. 29·25	E	81. 28. 26·90		336. 41. 37·02
Oct. 8	23	☽ 1 L.	6. 7. 38·81	21. 18. 12·18	30. 44. 17·40	E	103. 17. 53·39	16·77	328. 3. 6·41
	24	☽ L. L.	7. 11. 19·91	21. 20. 21·95	15. 18. 50·55	E	103. 10. 35·21	16·77	
	25	☽ L. L.	7. 20. 18·53	21. 20. 40·26	13. 8. 23·70	E	103. 9. 33·07	16·77	
	26	☽ 1 L.	7. 28. 18·56	21. 20. 56·56	11. 12. 8·10	E	103. 8. 37·63	16·77	347. 59. 7·47
	27	α Aquilæ		19. 44. 19·79	16. 3. 40·80	W	81. 28. 26·89		22. 47. 27·63
	28	α Aquilæ		19. 44. 19·79	18. 11. 20·85	W	81. 28. 26·89		25. 39. 20·19
Oct. 10	29	α Aquilæ		19. 44. 19·75	19. 33. 2·25	E	81. 28. 26·93		332. 32. 17·56
	30	α Aquilæ		19. 44. 19·75	17. 45. 58·65	E	81. 28. 26·93		334. 54. 34·76
	31	☽ 1 L.	5. 38. 44·39	22. 55. 5·46	60. 14. 7·50	E	96. 45. 26·03	17·46	298. 1. 46·14
	32	☽ U. L.	5. 43. 34·80	22. 55. 15·36	59. 3. 48·00	E	96. 44. 40·13	17·46	
	33	☽ 1 L.	5. 48. 1·96	22. 55. 24·49	57. 59. 6·60	E	96. 43. 57·89	17·46	299. 56. 0·94
	34	☽ U. L.	6. 1. 3·27	22. 55. 51·17	54. 49. 55·05	E	96. 41. 54·28	17·46	
Oct. 12	35	☽ 1 L.	6. 10. 48·41	0. 36. 7·05	75. 28. 55·65	E	88. 29. 10·44	18·01	280. 30. 38·94
	36	☽ L. L.	6. 18. 4·85	0. 36. 22·54	73. 43. 23·40	E	88. 27. 52·98	18·01	
	37	☽ L. L.	9. 14. 49·97	0. 42. 39·21	30. 59. 1·05	E	87. 56. 30·50	18·03	
	38	☽ 1 L.	9. 21. 22·71	0. 42. 53·19	29. 24. 3·60	E	87. 55. 20·78	18·03	323. 18. 49·45
Oct. 13	39	☽ U. L.	17. 1. 38·33	1. 51. 55·91	69. 42. 12·30	W	82. 23. 45·14	18·13	
	40	☽ 2 L.	17. 7. 20·33	1. 52. 8·62	71. 4. 45·90	W	82. 22. 47·56	18·13	79. 47. 39·23
	41	☽ U. L.	17. 13. 53·34	1. 52. 23·24	72. 39. 37·80	W	82. 21. 41·40	18·13	
	42	☽ 2 L.	17. 18. 30·03	1. 52. 33·53	73. 46. 25·20	W	82. 20. 54·84	18·13	82. 0. 11·22
	43	α Orionis		5. 48. 1·00	16. 49. 54·60	W	82. 37. 16·85		23. 25. 47·34
	44	α Orionis		5. 48. 1·00	18. 53. 34·05	W	82. 37. 16·85		26. 8. 52·70
Oct. 14	45	☽ 2 L.	10. 46. 26·82	2. 32. 2·82	33. 23. 40·05	E	79. 31. 1·34	18·09	314. 20. 29·93
	46	☽ L. L.	10. 53. 57·33	2. 32. 20·03	31. 35. 1·95	E	79. 29. 51·55	18·09	
	47	☽ L. L.	11. 2. 51·06	2. 32. 40·43	29. 26. 20·25	E	79. 28. 28·92	18·09	
	48	☽ 2 L.	11. 5. 57·67	2. 32. 47·56	28. 41. 20·25	E	79. 28. 0·06	18·09	319. 55. 5·64
Oct. 16	49	☽ 2 L.	18. 7. 33·72	4. 44. 9·70	46. 7. 43·50	W	72. 53. 43·36	17·77	64. 4. 18·78
	50	☽ U. L.	18. 11. 24·16	4. 44. 19·18	47. 3. 7·50	W	72. 53. 25·95	17·77	
	51	☽ 2 L.	18. 16. 39·11	4. 44. 32·15	48. 18. 50·10	W	72. 53. 2·21	17·77	66. 15. 34·25
	52	☽ U. L.	18. 20. 38·03	4. 44. 41·97	49. 16. 16·35	W	72. 52. 44·23	−17·77	

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
15. 38·05	44. 45. 54·36	54·37	− 0·01								1
				76. 20. 39·10	15. 10·24	3·5234883	54. 19·07	77. 30. 8·41	8·01	+ 0·40	2
15. 34·38	46. 33. 4·50	3·82	+ 0·68								3
				77. 14. 14·48	15. 10·18	3·5234622	54. 29·77	78. 23. 54·43	54·09	+ 0·34	4
		59·48	− 1·87								5
		51·81	+ 1·86								6
15. 31·99	28. 47. 16·85	19·99	− 3·14								7
				78. 44. 4·67	14. 54·52	3·5158759	53. 49·14	79. 52. 48·33	50·02	− 1·69	8
		6·45	+ 0·22								9
		15·17	− 0·22								10
				71. 29·35	14. 49·26	3·5133293	51. 45·20	72. 13. 3·81	8·03	− 4·22	11
15. 38·11	17. 14. 12·94	11·40	+ 1·54								12
				71. 34. 19·81	14. 49·26	3·5133307	51. 53·21	72. 41. 2·28	5·04	− 2·76	13
15. 35·58	19. 36. 4·55	6·92	− 2·37								14
		2·86	+ 2·01								15
		28·04	− 2·00								16
15. 34·39	327. 3. 24·34	28·31	− 3·97								17
				72. 47. 9·65	14. 54·80	3·5160550	52. 24·69	73. 24. 39·54	40·90	− 1·36	18
15. 37·62	328. 49. 21·26	24·65	− 3·39								19
				72. 9. 58·31	14. 54·84	3·5160696	52. 14·44	72. 47. 17·91	20·24	− 2·33	20
		12·16	+ 0·11								21
		37·13	− 0·11								22
15. 58·77	328. 19. 5·18	5·33	− 0·15								23
				66. 0. 24·13	15. 2·17	3·5196234	50. 47·88	67. 6. 14·18	11·04	+ 3·14	24
				65. 38. 4·19	15. 2·22	3·5196484	50. 39·60	66. 43. 46·01	47·51	− 1·50	25
16. 32·16	348. 15. 39·63	43·76	− 4·13								26
		26·32	+ 1·31								27
		21·50	− 1·31								28
		19·51	− 1·95								29
		33·20	+ 1·56								30
15. 42·40	298. 17. 28·54	34·29	− 5·75								31
				76. 55. 43·97	15. 20·91	3·5285620	54. 58·22	77. 35. 21·28	21·92	− 0·64	32
15. 47·23	300. 11. 48·17	53·74	− 5·57								33
				74. 37. 38·26	15. 21·07	3·5286328	54. 26·81	75. 16. 44·00	43·60	+ 0·40	34
15. 57·95	280. 46. 36·87	41·33	− 4·46								35
				78. 43. 27·20	15. 43·42	3·5390517	56. 46·69	79. 55. 57·31	58·52	− 1·21	36
				55. 49. 16·09	15. 44·71	3·5396548	48. 22·12	56. 53. 22·92	24·47	− 1·55	37
19. 9·88	323. 37. 59·33	66·27	− 6·94								38
				71. 28. 25·47	15. 57·63	3·5455395	55. 42·48	72. 8. 10·32	13·07	− 2·75	39
16. 44·70	79. 30. 54·53	56·28	− 1·75								40
				73. 15. 34·76	15. 57·70	3·5455729	56. 14·84	73. 55. 51·90	53·86	− 1·96	41
16. 36·12	81. 43. 35·10	37·50	− 2·40								42
		49·05	− 1·71								43
		50·59	+ 2·11								44
21. 12·48	313. 59. 17·45	23·76	− 6·31								45
				48. 22. 4·31	16. 3·47	3·5481988	44. 42·10	49. 22. 49·88	48·17	+ 1·71	46
				47. 26. 54·55	16. 3·52	3·5482184	44. 4·52	48. 27. 2·59	0·62	+ 1·97	47
21. 53·83	319. 33. 11·81	16·54	− 4·73								48
21. 10·32	63. 43. 8·46	13·72	− 5·26								49
				50. 31. 15·78	16. 13·72	3·5526471	46. 15·11	51. 1. 17·17	25·85	− 8·68	50
20. 48·22	65. 54. 46·03	51·43	− 5·40								51
				51. 46. 31·18	16. 13·73	3·5526508	47. 4·06	52. 17. 21·51	23·23	− 1·72	52

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N.P.D. of Center.	Normal-centric Correction to N.P.D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
Nov. 5	1	☽ U. L.	4. 18. 34·14	21. 45. 45·52	37. 22. 24·00	E	101. 50. 29·61	−16·85	
	2	☽ 1 L.	4. 22. 59·69	21. 45. 54·41	36. 18. 3·30	E	101. 49. 55·85	16·85	322. 6. 59·79
	3	α Aquilæ		19. 44. 19·30	4. 21. 56·25	E	81. 28. 27·97		353. 40. 29·27
	4	α Aquilæ		19. 44. 19·30	3. 8. 17·55	E	81. 28. 27·97		355. 26. 57·61
Nov. 6	5	☽ L. L.	6. 10. 18·62	22. 37. 39·52	21. 21. 3·30	E	98. 14. 41·73	17·24	
	6	☽ 1 L.	6. 14. 17·52	22. 37. 47·54	20. 23. 10·35	E	98 14. 5·83	17·24	337. 4. 11·52
	7	☽ L. L.	6. 18. 39·96	22. 37. 56·34	19. 19. 34·95	E	98. 13. 26·39	17·24	
	8	☽ 1 L.	6. 21. 44·66	22. 38. 2·54	18. 34. 49·80	E	98. 12. 58·61	17·24	339. 1. 54·75
	9	α Aquilæ		19. 44. 19·29	26. 11. 27·30	W	81. 28. 28·03		35. 56. 49·23
	10	α Aquilæ		19. 44. 19·29	27. 22. 34·35	W	81. 28. 28·03		37. 24. 9·80
Nov. 7	11	☽ 1 L.	4. 13. 49·52	23. 22. 15·53	60. 42. 58·65	E	94. 45. 16·19	17·57	296. 28. 36·83
	12	☽ U. L.	4. 17. 44·82	23. 22. 23·52	59. 45. 59·25	E	94. 44. 37·25	17·57	
	13	☽ 1 L.	4. 21. 14·19	23. 22. 30·61	58. 55. 16·50	E	94. 44. 2·58	17·57	298. 0. 0·80
	14	☽ U. L.	4. 25. 16·76	23. 22. 38·83	57. 56. 31·35	E	94. 43. 22·42	17·57	
	15	α Aquilæ		19. 44. 19·27	0. 53. 57·30	W	81. 28. 28·09		1. 18. 18·24
	16	α Aquilæ		19. 44. 19·27	2. 6. 31·05	W	81. 28. 28·09		3. 3. 33·09
Nov. 8	17	☽ U. L.	5. 4. 5·75	0. 13. 24·16	59. 54. 52·50	E	90. 29. 38·67	17·90	
	18	☽ 1 L.	5. 7. 17·75	0. 13. 30·84	59. 8. 24·75	E	90. 29. 4·80	17·90	295. 20. 25·65
	19	☽ U. L.	5. 11. 18·74	0. 13. 39·23	58. 10. 5·85	E	90. 28. 22·32	17·90	
	20	☽ 1 L.	5. 14. 42·65	0. 13. 46·33	57. 20. 45·45	E	90. 27. 46·34	17·90	296. 53. 54·04
	21	α Aquilæ		19. 44. 19·26	11. 20. 27·15	W	81. 28. 28·18		16. 2. 15·58
	22	α Aquilæ		19. 44. 19·26	12. 10. 13·20	W	81. 28. 28·18		17. 25. 55·00
Nov. 10	23	☽ 1 L.	11. 25. 25·44	2. 11. 49·07	8. 2. 45·60	W	80. 55. 53·26	18·24	11. 42. 41·73
	24	☽ L. L.	11. 39. 5·08	2. 12. 20·33	11. 20. 24·90	W	80. 53. 36·78	18·24	
	25	☽ 1 L.	11. 48. 3·70	2. 12. 40·88	13. 30. 18·00	W	80. 52. 7·18	18·24	19. 28. 12·67
	26	☽ L. L.	11. 53. 51·81	2. 12. 54·16	14. 54. 15·00	W	80. 51. 9·30	18·24	
Nov. 11	27	☽ 1 L.	6. 39. 59·14	2. 56. 41·14	73. 44. 25·05	E	77. 52. 58·08	18·22	275. 4. 34·92
	28	☽ 2 L.	6. 42. 59·25	2. 56. 48·29	73. 1. 3·15	E	77. 52. 31·25	18·22	275. 39. 6·98
	29	☽ U. L.	6. 48. 51·99	2. 57. 2·26	71. 36. 7·20	E	77. 51. 38·78	18·22	
	30	☽ L. L.	6. 52. 27·90	2. 57. 10·80	70. 44. 7·80	E	77. 51. 6·68	18·22	
	31	☽ 1 L.	6. 57. 48·02	2. 57. 23·49	69. 27. 3·15	E	77. 50. 19·09	18·22	278. 31. 25·56
	32	☽ 2 L.	7. 0. 47·09	2. 57. 30·59	68. 43. 56·25	E	77. 49. 52·50	18·22	279. 6. 33·46
	33	☽ U. L.	7. 7. 27·67	2. 57. 46·47	67. 7. 29·25	E	77. 48. 53·04	18·22	
	34	☽ L. L.	7. 11. 6·03	2. 57. 55·12	66. 14. 54·75	E	77. 48. 20·66	18·22	
	35	ε Pegasi		21. 37. 41·53	17. 4. 54·45	W	80. 43. 35·55		24. 26. 46·46
	36	ε Pegasi		21. 37. 41·53	19. 8. 28·95	W	80. 43. 35·55		27. 13. 20·88
Nov. 13	37	☽ 2 L.	7. 47. 39·58	4. 58. 26·15	85. 14. 30·30	E	72. 21. 12·30	17·98	262. 22. 54·40
	38	☽ L. L.	7. 50. 55·74	4. 58. 34·51	84. 27. 25·20	E	72. 20. 58·87	17·98	
	39	☽ 2 L.	7. 54. 51·90	4. 58. 44·60	83. 30. 44·55	E	72. 20. 42·72	17·98	263. 41. 19·72
	40	☽ L. L.	7. 58. 21·72	4. 58. 53·56	82. 40. 22·80	E	72. 20. 28·40	17·98	
	41	ζ Pegasi		22. 34. 52·33	14. 34. 35·70	W	79. 51. 18·72		21. 17. 35·89
	42	ζ Pegasi		22. 34. 52·33	15. 49. 8·40	W	79. 51. 18·72		23. 1. 46·21
Nov. 14	43	☽ L. L.	12. 17. 33·54	6. 11. 58·40	34. 58. 51·15	E	71. 16. 2·92	17·87	
	44	☽ 2 L.	12. 21. 37·44	6. 12. 8·92	34. 0. 20·55	E	71. 16. 1·26	17·87	308. 1. 16·39
	45	☽ L. L.	12. 28. 59·58	6. 12. 27·99	32. 14. 16·20	E	71. 15. 58·35	17·87	
	46	☽ 2 L.	12. 33. 42·03	6. 12. 40·15	31. 6. 30·30	E	71. 15. 56·55	17·87	311. 35. 25·98
	47	α Orionis		5. 48. 1·81	11. 30. 1·20	E	82. 37. 18·98		343. 47. 40·35
	48	α Orionis		5. 48. 1·81	10. 3. 33·45	E	82. 37. 18·98		345. 47. 17·81
Nov. 15	49	☽ L. L.	9. 48. 31·57	7. 7. 21·42	85. 12. 4·95	E	71. 37. 39·28	17·84	
	50	☽ 2 L.	9. 51. 45·43	7. 7. 29·67	84. 25. 32·85	E	71. 37. 47·02	17·84	262. 30. 27·85
	51	☽ L. L.	9. 57. 22·45	7. 7. 44·02	83. 4. 39·00	E	71. 38. 0·55	17·84	
	52	☽ 2 L.	10. 0. 24·08	7. 7. 51·75	82. 21. 2·85	E	71. 38. 7·87	−17·84	264. 5. 6·61
	53	ν Piscium		1. 34. 34·11	7. 22. 7·80	W	85. 10. 56·25		10. 3. 13·61
	54	ν Piscium		1. 34. 34·11	18. 46. 53·10	W	85. 10. 56·25		25. 4. 16·34

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
				71. 5. 52·74	15. 1·55	3·5193199	52. 19·17	71. 43. 10·36	9·20	+ 1·16	1
15. 54·84	322. 22. 54·63	54·49	+ 0·14								2
		28·57	+ 0·70								3
		58·32	− 0·71								4
				62. 29. 10·37	15. 12·34	3·5244940	49. 56·21	63. 34. 18·92	18·53	+ 0·39	5
17. 10·46	337. 21. 21·98	21·30	+ 0·68								6
				61. 58. 32·63	15. 12·40	3·5245251	49. 42·95	63. 3. 27·98	28·42	− 0·44	7
17. 14·73	339. 19. 9·48	8·90	+ 0·58								8
		50·74	− 1·51								9
		8·28	+ 1·52								10
15. 50·44	296. 44. 27·27	35·96	− 8·69								11
				75. 38. 47·41	15. 23·50	3·5297587	54. 50·18	76. 18. 14·09	18·33	− 4·24	12
15. 54·80	298. 15. 55·60	63·67	− 8·07								13
				74. 37. 35·22	15. 23·57	3·5297882	54. 35·54	75. 16. 47·19	50·13	− 2·94	14
		18·56	− 0·32								15
		32·77	+ 0·32								16
				72. 12. 36·46	15. 37·30	3·5362316	54. 44·70	72. 51. 43·86	45·46	− 1·60	17
16. 26·35	295. 36. 52·00	52·85	− 0·85								18
				71. 12. 37·23	15. 37·37	3·5362631	54. 26·66	71. 51. 26·52	27·48	− 0·96	19
16. 32·41	297. 10. 26·45	25·21	+ 1·24								20
		15·97	− 0·39								21
		54·18	+ 0·82								22
23. 40·01	12. 6. 21·74	24·59	− 2·85								23
				43. 22. 36·41	16. 7·53	3·5500271	41. 19·77	44. 20. 3·71	2·90	+ 0·81	24
23. 18·08	19. 51. 30·75	34·40	− 3·65								25
				44. 3. 23·50	16. 7·65	3·5500811	41. 50·41	45. 1. 21·56	22·33	− 0·77	26
17. 15·31	275. 21. 50·23	55·79	− 5·56								27
17. 18·28	275. 21. 48·70	52·16	− 3·46								28
				69. 5. 54·43	16. 16·13	3·5538518	55. 58·60	69. 45. 36·90	34·26	+ 2·64	29
				68. 33. 21·74	16. 16·15	3·5538628	55. 58·92	69. 45. 36·81	36·31	+ 0·50	30
17. 34·14	278. 48. 59·70	63·87	− 4·17								31
17. 37·58	278. 48. 55·88	60·59	− 4·71								32
				66. 18. 21·53	16. 16·25	3·5539065	54. 54·25	66. 56. 59·53	55·09	+ 4·44	33
				65. 45. 46·32	16. 16·27	3·5539174	54. 54·55	66. 56. 57·14	57·16	− 0·02	34
		43·23	+ 3·23								35
		24·52	− 3·64								36
17. 10·92	262. 5. 43·48	51·04	− 7·56								37
				72. 51. 57·32	16. 28·20	3·5592232	58. 5·92	74. 6. 31·44	30·26	+ 1·18	38
17. 16·93	263. 24. 2·79	10·74	− 7·95								39
				71. 45. 18·74	16. 28·21	3·5592280	57. 45·96	72. 59. 32·91	32·11	+ 0·80	40
		34·84	+ 1·05								41
		47·26	− 1·05								42
				42. 43. 41·12	16. 27·95	3·5591133	41. 43·24	43. 41. 52·31	51·16	+ 1·15	43
24. 28·76	307. 36. 47·63	48·73	− 1·10								44
				41. 23. 24·91	16. 27·94	3·5591049	40. 40·57	42. 20. 33·42	35·21	− 1·79	45
25. 9·42	311. 10. 16·56	21·23	− 4·67								46
		40·03	+ 0·32								47
		18·13	− 0·32								48
				72. 46. 34·77	16. 24·56	3·5576157	57. 51·39	74. 0. 50·72	47·06	+ 3·66	49
17. 12·96	262. 13. 14·89	22·42	− 7·53								50
				71. 28. 7·29	16. 24·53	3·5576024	57. 27·57	72. 41. 59·39	58·18	+ 1·21	51
17. 20·61	263. 47. 46·00	51·73	− 5·73								52
		14·42	− 0·81								53
		15·53	+ 0·81								54

Assumed Colatitude 38°. 31′. 22″·14.

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DAY.	No. for Reference.	NAME OF OBJECT.	Mean Solar Time.	Tabular R.A. of Center.	Hour Angle.	Side of Meridian.	Tabular Geocentric N.P.D. of Center.	Normal-centric Correction to N.P.D.	Tabular Normal-centric or Apparent Azimuth of Center.
			h m s	h m s	° ′ ″		° ′ ″	″	° ′ ″
Dec. 5	1	☽ U. L.	3. 56. 10·47	23. 52. 10·94	45. 1. 25·65	E	92. 32. 13·98	−17·58	
	2	☽ U. L.	+ 0. 15·02	23. 52. 19·13	44. 2. 10·35	E	92. 31. 32·56	17·58	
	3	☽ 1 L.	+ 4. 17·82	23. 52. 27·28	43. 3. 20·55	E	92. 30. 51·41	17·58	311. 15. 40·77
	4	☽ 1 L.	+ 9. 3·10	23. 52. 36·83	41. 54. 12·75	E	92. 30. 3·07	17·58	312. 22. 49·19
	5	α Aquilæ		19. 44. 18·96	24. 27. 37·05	W	81. 28. 31·13		33. 47. 18·91
	6	α Aquilæ		19. 44. 18·96	25. 45. 34·65	W	81. 28. 31·13		35. 24. 44·51
Dec. 6	7	☽ 1 L.	4. 35. 26·66	0. 42. 28·59	46. 46. 2·55	E	88. 15. 51·71	17·87	305. 21. 26·87
	8	☽ U. L.	4. 38. 59·12	0. 42. 35·94	45. 54. 37·05	E	88. 15. 14·33	17·87	
	9	☽ U. L.	4. 42. 18·40	0. 42. 42·82	45. 6. 22·95	E	88. 14. 39·25	17·87	
	10	☽ 1 L.	4. 46. 6·73	0. 42. 50·73	44. 11. 7·20	E	88. 13. 59·07	17·87	307. 51. 26·86
	11	α Aquilæ		19. 44. 18·96	31. 44. 35·40	W	81. 28. 31·26		42. 36. 30·21
	12	α Aquilæ		19. 44. 18·96	32. 45. 25·65	W	81. 28. 31·26		43. 46. 55·21
Dec. 7	13	☽ U. L.	5. 41. 37·43	1. 35. 45·60	42. 30. 44·70	E	83. 51. 4·34	18·09	
	14	☽ 1 L.	5. 44. 52·65	1. 35. 52·68	41. 43. 34·65	E	83. 50. 30·37	18·09	307. 49. 12·25
	15	☽ U. L.	5. 51. 30·12	1. 36. 7·09	40. 7. 32·40	E	83. 49. 21·25	18·09	
	16	☽ 1 L.	5. 54. 12·30	1. 36. 12·98	39. 28. 21·30	E	83. 48. 53·05	18·09	310. 9. 20·29
	17	ν Piscium		1. 34. 34·01	7. 1. 15·45	E	85. 10. 57·53		350. 25. 1·94
	18	ν Piscium		1. 34. 34·01	5. 52. 57·15	E	85. 10. 57·53		351. 57. 42·91
Dec. 8	19	☽ L. L.	15. 18. 55·05	2. 51. 44·46	84. 11. 47·85	W	78. 17. 28·93	18·22	
	20	☽ 1 L.	15. 23. 18·68	2. 51. 54·80	85. 15. 17·85	W	78. 16. 48·65	18·22	93. 42. 20·48
	21	☽ L. L.	15. 28. 32·97	2. 52. 7·12	86. 31. 0·45	W	78. 16. 0·65	18·22	
	22	☽ 1 L.	15. 32. 32·77	2. 52. 16·52	87. 28. 46·35	W	78. 15. 24·01	18·22	95. 26. 20·83
	23	Regulus		10. 1. 20·05	17. 55. 42·90	E	77. 23. 23·41		333. 1. 61·71
	24	Regulus		10. 1. 20·05	16. 16. 59·25	E	77. 23. 23·41		335. 22. 21·98
Dec. 9	25	☽ U. L.	6. 0. 12·77	3. 26. 52·72	63. 39. 38·70	E	76. 9. 56·76	18·22	
	26	☽ 1 L.	6. 6. 23·75	3. 27. 7·77	62. 10. 24·60	E	76. 9. 6·43	18·22	283. 27. 23·41
	27	☽ U. L.	6. 14. 7·85	3. 27. 26·61	60. 18. 46·50	E	76. 8. 3·53	18·22	
	28	☽ 1 L.	6. 18. 57·79	3. 27. 38·37	59. 9. 1·95	E	76. 7. 24·28	18·22	286. 4. 0·51
	29	ζ Pegasi		22. 34. 51·98	16. 35. 32·10	W	79. 51. 20·32		24. 6. 3·72
	30	ζ Pegasi		22. 34. 51·98	18. 38. 23·25	W	79. 51. 20·32		26. 54. 15·54
Dec. 10	31	☽ 1 L.	8. 27. 32·23	4. 33. 8·23	42. 18. 28·20	E	73. 6. 52·13	18·17	300. 3. 14·46
	32	☽ U. L.	8. 40. 51·16	4. 33. 42·46	39. 6. 44·85	E	73. 5. 38·51	18·17	
	33	☽ L. L.	8. 45. 15·31	4. 33. 53·78	38. 3. 21·60	E	73. 5. 14·27	18·17	
	34	☽ U. L.	8. 47. 13·80	4. 33. 58·85	37. 34. 55·35	E	73. 5. 3·39	18·17	
	35	☽ L. L.	8. 51. 43·24	4. 34. 10·40	36. 30. 15·90	E	73. 4. 38·71	18·17	306. 49. 49·36
	36	☽ 1 L.	8. 53. 6·99	4. 34. 14·00	36. 10. 10·35	E	73. 4. 31·04	18·17	10. 34. 5·98
	37	α Orionis		5. 48. 2·29	7. 27. 5·85	W	82. 37. 21·55		11. 58. 19·58
	38	α Orionis		5. 48. 2·29	8. 27. 10·35	W	82. 37. 21·55		
Dec. 12	39	ε Pegasi		21. 37. 41·11	20. 10. 0·30	W	80. 43. 38·00		28. 35. 7·16
	40	ε Pegasi		21. 37. 41·11	21. 45. 56·25	W	80. 43. 38·00		30. 41. 4·89
	41	☽ 2 L.	6. 37. 49·09	6. 34. 56·90	98. 17. 39·00	E	71. 9. 5·45	18·11	251. 47. 23·86
	42	☽ L. L.	6. 49. 53·56	6. 35. 29·09	95. 24. 4·95	E	71. 9. 13·39	18·11	
	43	☽ 2 L.	6. 53. 54·37	6. 35. 39·80	94. 26. 23·70	E	71. 9. 16·10	18·11	254. 40. 31·83
	44	☽ L. L.	6. 58. 55·49	6. 35. 53·18	93. 14. 15·30	E	71. 9. 19·55	18·11	
Dec. 13	45	☽ 2 L.	9. 6. 20·21	7. 44. 56·25	77. 34. 28·20	E	72. 14. 38·22	18·15	268. 10. 20·70
	46	☽ L. L.	9. 13. 1·32	7. 45. 13·68	75. 58. 16·35	E	72. 15. 6·59	18·15	
	47	☽ 2 L.	9. 16. 56·50	7. 45. 23·90	75. 1. 52·35	E	72. 15. 23·28	18·15	270. 9. 42·20
	48	☽ L. L.	9. 22. 33·36	7. 45. 38·54	73. 41. 5·25	E	72. 15. 47·24	18·15	
	49	ν Piscium		1. 34. 33·96	21. 13. 49·05	W	85. 10. 57·89		28. 8. 58·65
	50	ν Piscium		1. 34. 33·96	23. 28. 33·90	W	85. 10. 57·89		30. 55. 9·56
Dec. 15	51	☽ 2 L.	18. 16. 36·92	10. 6. 22·64	26. 58. 59·40	W	79. 7. 21·07	18·26	38. 9. 29·72
	52	☽ 2 L.	18. 21. 56·69	10. 6. 35·02	28. 16. 3·45	W	79. 8. 11·71	18·26	39. 44. 51·65
	53	☽ U. L.	18. 27. 13·49	10. 6. 47·29	29. 32. 24·30	W	79. 9. 1·89	18·26	
	54	☽ U. L.	18. 31. 52·83	10. 6. 58·19	30. 39. 42·15	W	79. 9. 46·18	−18·26	

Assumed proportion of Polar and Equatoreal Axes of the Earth, 299 : 300.

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Correction to Azimuth for Semidiameter.	Tabular Normal-centric or Apparent Azimuth of Limb, measuring from S. to W., N., and E.	Seconds of Observed Azimuth.	Apparent Error of Tabular Azimuth.	Tabular Normal-centric Zenith Distance of Center.	Semi-diameter.	Log. Seconds of Normal-centric Horizontal Parallax.	Parallax at Observation.	Tabular Apparent Zenith Distance of Limb.	Seconds of Observed Zenith Distance.	Apparent Error of Tabular Zenith Distance.	No. for Reference.
′ ″	° ′ ″	″	″	° ′ ″	′ ″		′ ″	° ′ ″	″	″	
				66. 5. 41·25	15. 21·70	3·5289005	51. 44·15	66. 42. 3·70	3·30	+ 0·40	1
				65. 36. 44·77	15. 21·73	3·5289186	51. 32·85	66. 12. 55·89	56·07	− 0·18	2
16. 55·32	311. 32. 36·09	39·68	− 3·59								3
16. 59·93	312. 39. 49·12	52·31	− 3·19								4
		19·96	− 1·05								5
		43·46	+ 1·05								6
17. 28·06	305. 38. 54·93	51·87	+ 3·06								7
				62. 48. 9·81	15. 36·41	3·5358158	51. 10·44	63. 23. 43·84	47·72	− 3·88	8
				62. 23. 31·81	15. 36·44	3·5358323	50. 59·35	62. 58. 54·72	54·35	+ 0·37	9
17. 40·76	308. 9. 7·62	7·45	+ 0·17								10
		29·73	+ 0·48								11
		55·68	− 0·47								12
				57. 17. 38·90	15. 52·64	3·5432919	49. 17·97	57. 51. 4·23	6·01	− 1·78	13
18. 56·65	308. 8. 8·90	14·95	− 6·05								14
				56. 6. 6·28	15. 52·74	3·5433417	48. 38·60	56. 38. 52·14	52·87	− 0·73	15
19. 11·61	310. 28. 31·90	37·09	− 5·19								16
		0·66	+ 1·28								17
		44·19	− 1·28								18
				77. 15. 41·49	16. 14·10	3·5529736	58. 21·00	78. 30. 16·59	16·90	− 0·31	19
16. 35·72	93. 58. 56·20	55·27	+ 0·93								20
				78. 41. 3·93	16. 14·20	3·5530162	58. 38·01	79. 55. 56·14	60·37	− 4·23	21
16. 31·05	95. 42. 51·88	47·91	+ 3·97								22
		59·16	+ 2·55								23
		24·52	− 2·54								24
				62. 54. 20·38	16. 22·51	3·5566836	53. 45·31	63. 31. 43·18	45·33	− 2·15	25
18. 32·35	283. 45. 55·76	52·75	+ 3·01								26
				60. 51. 17·26	16. 22·63	3·5567380	52. 45·64	61. 27. 40·27	38·45	+ 1·82	27
18. 52·42	286. 22. 52·93	56·98	− 4·05								28
		5·28	− 1·56								29
		13·86	+ 1·68								30
22. 15·78	300. 25. 30·24	29·99	+ 0·25								31
				46. 22. 29·55	16. 34·55	3·5619767	44. 20·38	46. 50. 15·38	18·72	− 3·34	32
				45. 49. 27·50	16. 34·58	3·5619886	44. 20·60	46. 50. 22·68	19·10	+ 3·58	33
				45. 34. 47·28	16. 34·59	3·5619934	43. 45·19	46. 1. 57·88	62·81	− 4·93	34
				45. 1. 47·41	16. 34·61	3·5620053	43. 45·40	46. 2. 7·42	3·39	+ 4·03	35
23. 29·34	307. 13. 18·70	25·83	− 7·13								36
		7·44	− 1·46								37
		18·24	+ 1·34								38
		7·18	− 0·02								39
		4·87	+ 0·02								40
16. 55·94	251. 30. 27·92	23·81	+ 4·11								41
				78. 37. 13·57	16. 42·01	3·5652323	60. 18·04	79. 54. 13·62	15·36	− 1·74	42
17. 3·74	254. 23. 28·09	26·37	+ 1·72								43
				77. 19. 17·34	16. 42·01	3·5652298	60. 1·61	78. 36. 0·96	5·07	− 4·13	44
17. 51·98	267. 52. 28·72	36·14	− 7·42								45
				67. 31. 15·65	16. 37·93	3·5634577	56. 50·99	68. 44. 44·57	43·77	+ 0·80	46
18. 4·06	269. 51. 38·14	46·30	− 8·16								47
				66. 6. 20·14	16. 37·89	3·5634399	56. 16·81	67. 19. 14·84	15·70	− 0·86	48
		60·02	− 1·37								49
		8·19	+ 1·37								50
22. 29·43	37. 47. 0·29	4·96	− 4·67								51
22. 17·85	39. 22. 33·80	40·06	− 6·26								52
				47. 11. 42·91	16. 13·58	3·5527487	43. 59·09	47. 39. 28·42	27·19	+ 1·23	53
				47. 40. 24·91	16. 13·54	3·5527304	44. 19·20	48. 8. 30·57	29·88	+ 0·69	54

Assumed Colatitude 38°. 31′. 22″·14.

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ROYAL OBSERVATORY, GREENWICH.

COMPUTATION

OF

CLOCK ERRORS AND INSTRUMENTAL ERRORS,

FOR THE

REDUCTION OF THE OBSERVATIONS

WITH THE

ALTAZIMUTH;

AND

APPARENT ERRORS OF THE TABULAR PLACES OF THE MOON

IN

RIGHT ASCENSION AND NORTH POLAR DISTANCE.

1867.

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Separate Results for the ERROR of COLLIMATION of the ALTAZIMUTH, obtained from Observations of a HIGH STAR and the COLLIMATOR.

DAY, 1867.		Observer.	Name of Star.	Resulting Error of Collimation.	Adopted Error of Collimation.
				"	"
Jan.	8	C	ζ Pegasi	+ 3·04	+ 3·61
	13	D	γ Piscium	3·89	
	14	JC	ζ Pegasi	3·45	
	17	L	γ Piscium	2·97	
	18	JC	α Orionis	3·82	
	19	E	α Ceti	3·93	
	23	E	β Leonis	3·85	
Jan.	28	C	β Leonis	3·13	+ 3·13
Jan.	30	JC	α Serpentis	3·77	+ 3·61
Feb.	1	C	α Serpentis	3·79	
Feb.	6	E	α Ceti	5·54	+ 4·03
	8	JC	α Ceti	3·88	
	10	E	α Orionis	4·43	
	11	C	α Orionis	4·08	
	14	E	γ Piscium	3·87	
	16	L	α Orionis	2·97	
	20	D	α Orionis	3·51	
	22	E	α Serpentis	4·12	
	23	C	β Leonis	3·33	
	24	D	β Leonis	3·68	
	28	JC	α Serpentis	4·06	
March	2	E	α Serpentis	4·92	
March	7	D	α Orionis	3·68	+ 3·68
	8	JC	α Orionis	4·00	
	14	E	Regulus	4·14	
	15	C	α Orionis	3·73	
	16	D	Regulus	4·10	
	21	E	β Leonis	4·11	
	24	D	α Serpentis	3·82	
	26	D	α Serpentis	3·31	
	27	JC	α Serpentis	3·53	
	29	E	α Aquilæ	3·48	
	30	D	α Aquilæ	3·49	
	31	JC	α Aquilæ	2·82	
April	8	JC	Regulus	3·42	+ 3·63
	9	D	β Leonis	3·55	
	10	C	Regulus	2·99	
April	11	E	β Leonis	3·88	
	12	JC	Regulus	3·49	
	14	C	Regulus	3·27	
	15	E	β Leonis	3·88	
	17	L	Regulus	3·37	
	18	C	π Leonis	4·30	
	21	D	l Leonis	3·58	
	27	E	α Aquilæ	4·24	
Mar.	5	JC	π Leonis	3·94	+ 3·47
	6	E	Regulus	3·36	
	7	D	Regulus	3·25	

DAY, 1867.		Observer.	Name of Star.	Resulting Error of Collimation.	Adopted Error of Collimation.
				"	"
May	8	C	π Leonis / Bradley 1396 †	+ 3·52	+ 3·47
	9	JC	Regulus	3·65	
	10	E	l Leonis	3·54	
	11	S	Regulus	2·97	
	17	JC	Regulus	3·24	
	18	E	β Leonis	4·03	
	21	JC	α Serpentis	3·50	
	22	E	α Serpentis	3·17	
	23	JC	α Aquilæ	3·84	
	24	D	α Aquilæ	3·86	
	26	E	α Aquilæ	3·06	
	27	JC	α Aquilæ	3·52	
	28	D	α Aquilæ	3·76	
June	6	D	α Serpentis	3·93	+ 3·71
	8	JC	β Leonis	2·89	
	9	E	β Leonis	4·55	
	10	D	β Leonis	3·40	
	11	C	Regulus	3·29	
	14	K	α Serpentis	4·04	
	16	JC	α Serpentis	3·73	
	17	E	α Serpentis	4·70	
	22	S	α Aquilæ / γ Aquilæ †	2·87	
	24	JC	α Aquilæ	3·23	
	26	D	α Aquilæ	4·22	
July	5	D	α Serpentis	3·36	+ 3·89
	7	C	α Serpentis	4·05	
	8	E	α Serpentis	3·63	
	9	D	α Serpentis	3·07	
	10	JC	α Serpentis	4·11	
	11	C	α Serpentis	3·91	
	13	D	α Serpentis	3·12	
	14	JC	α Serpentis	4·11	
	16	L	κ Ophiuchi	5·18	
	18	D	α Serpentis	3·65	
	21	JC	ε Pegasi	4·03	
	22	D	α Aquilæ	3·94	
	24	E	α Aquilæ	4·45	
Aug.	4	E	α Ophiuchi	4·41	+ 4·01
	6	E	α Aquilæ	4·07	
	8	L	α Serpentis	3·59	
	9	C	α Serpentis	4·18	
	10	E	κ Ophiuchi	4·46	
	11	JC	α Serpentis	4·07	
	12	D	κ Ophiuchi	3·55	
	13	C	α Aquilæ	4·54	
	14	D	κ Ophiuchi	3·93	
	16	JC	α Aquilæ	4·21	
	20	JC	α Aquilæ	4·35	
	21	C	α Aquilæ	4·19	
	22	JC	α Aquilæ	4·06	

† One of these stars was observed with Graduated Face Right, and the other with Graduated Face Left. January 28. The transits were observed by "eye and ear."

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Separate Results for the ERROR of COLLIMATION of the ALTAZIMUTH—*concluded.*

DAY. 1867.	Observer.	Name of Star.	Resulting Error of Collimation.	Adopted Error of Collimation.
			″	″
Aug. 23	L	ζ Pegasi	+ 3·43	+ 4·01
24	HC	ε Pegasi	3·13	
Sept. 3	JC	α Aquilæ	3·68	+ 4·19
5	E	α Aquilæ	3·74	
7	JC	α Aquilæ	3·94	
10	C	α Aquilæ	4·47	
12	D	α Aquilæ	4·01	
13	E	α Aquilæ	4·11	
14	C	α Aquilæ	4·16	
15	E	α Aquilæ	5·23	
16	D	α Aquilæ	4·24	
18	L	α Aquilæ	4·45	
20	D	ζ Pegasi	4·15	
Sept. 22	L	ζ Pegasi	2·14	+ 2·14
Sept. 23	E	α Orionis	4·18	+ 4·19
24	D	α Orionis	4·30	
25	JC	α Orionis	4·22	
Oct. 1	JC	α Aquilæ	4·03	+ 3·84
3	D	ε Pegasi	4·32	
5	E	α Aquilæ	4·13	
7	D	α Aquilæ	3·91	
8	S	α Aquilæ	3·87	
10	C	α Aquilæ	3·78	
13	E	α Orionis	3·83	
16	L	Regulus	3·54	
17	E	ζ Pegasi	3·23	
18	C	ζ Pegasi	3·84	
19	K	γ Piscium	4·33	
20	D	γ Piscium	3·26	
Nov. 2	E	α Aquilæ	+ 4·57	+ 3·94
3	D	α Aquilæ	3·54	
4	JC	α Aquilæ	3·98	
5	C	α Aquilæ	3·81	
6	E	α Aquilæ	3·55	
7	D	α Aquilæ	3·68	
8	JC	α Aquilæ	4·32	
11	S	ε Pegasi	4·03	
13	C	ζ Pegasi	4·49	
14	E	α Orionis	4·41	
15	D	γ Piscium	3·44	
16	JC	γ Piscium	3·67	
17	C	α Orionis	3·97	
19	D	α Orionis	3·65	
20	JC	β Leonis	3·94	
Nov. 28	JC	α Aquilæ	3·81	+ 3·43
29	D	α Aquilæ	4·24	
Dec. 2	JC	α Aquilæ	3·56	
3	D	γ Piscium	2·97	
4	E	ε Pegasi	3·49	
5	C	α Aquilæ	3·43	
6	JC	α Aquilæ	3·42	
7	D	γ Piscium	3·23	
8	E	Regulus	2·45	
9	K	ζ Pegasi	3·56	
12	E	ε Pegasi	3·17	
13	C	γ Piscium	3·03	
15	D	Regulus	3·63	
17	K	β Leonis	3·30	
18	L	β Leonis	3·27	
22	E	β Leonis	4·26	

September 22. The transits were observed by "eye and ear."

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Comparisons of the LEVEL INDICATION for HORIZONTAL POSITION of the AXIS of VERTICAL CIRCLE with the LEVEL INDICATION for VERTICAL POSITION of the AXIS of REVOLUTION, as deduced from the Mean of Comparisons in each Lunation.

Interval of Time, 1867.	Number of Comparisons.	Excess of Indication for Horizontal Position of Axis of Vertical Circle above Indication for Vertical Position of Axis of Revolution.
		″
January 8 to February 1	11	− 3·21
February 6 to March 2	12	− 4·13
March 7 to March 31	12	− 4·11
April 8 to April 27	11	− 4·83
May 5 to May 28	16	− 2·54
June 6 to June 26	11	− 3·88
July 5 to July 24	13	− 4·81
August 4 to August 24	15	− 4·58
September 3 to September 25	16	− 3·81
October 1 to October 23	13	− 4·13
November 2 to November 20	15	− 4·80
November 28 to December 22	18	− 6·16

The mean excess of the Level Indication for Horizontal Position of the Axis of Vertical Circle above the Level Indication for Vertical Position of the Axis of Revolution, giving weight proportional to the number of comparisons, is − 4″·30 for the year 1867.

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Separate Results for AZIMUTH ZERO of the ALTAZIMUTH.

DAY, 1867.	Observer.	Name of Star.	Position of Graduated Face of Vertical Circle.	Resulting Zero of Azimuth.	Adopted Zero of Azimuth.
				o ′ ″	o ′ ″
Jan. 8	C	ζ Pegasi	Right	10. 57. 24·20	10. 57. 25·58
	C	ζ Pegasi	Left	26·96	
Jan. 11	E	ν Piscium ...	Left	19·79	10. 57. 19·79
Jan. 12	C	ν Piscium ...	Left	19·33	10. 57. 17·18
	C	ν Piscium ...	Right	15·83	
Jan. 13	D	ν Piscium ..	Right	17·12	
	D	ν Piscium ..	Left	16·46	
Jan. 14	JC	ζ Pegasi	Right	16·41	10. 57. 18·82
	JC	ζ Pegasi	Left	21·07	
Jan. 17	L	ν Piscium ...	Right	17·52	
	L	ν Piscium ...	Left	19·21	
Jan. 18	JC	α Orionis ...	Left	19·28	
	JC	α Orionis ...	Right	19·42	
Jan. 19	E	α Ceti	Left	15·45	10. 57. 16·52
	E	α Ceti	Right	17·59	
Jan. 23	E	β Leonis	Right	26·11	10. 57. 23·16
	E	β Leonis	Left	20·21	
Jan. 28	C	β Leonis	Right	22·63	10. 57. 21·22
	C	β Leonis	Left	19·80	
Jan. 30	JC	α Serpentis..	Left	20·72	10. 57. 20·60
	JC	α Serpentis..	Right	20·47	
Feb. 1	C	α Serpentis .	Right	26·72	10. 57. 25·94
	C	α Serpentis .	Left	25·15	
Feb. 6	E	α Ceti	Right	20·40	10. 57. 18·39
	E	α Ceti	Left	16·37	
Feb. 8	JC	α Ceti	Left	22·48	10. 57. 22·26
	JC	α Ceti	Right	22·04	
Feb. 10	E	α Orionis ...	Right	18·54	10. 57. 21·15
	E	α Orionis ...	Left	22·67	
Feb. 11	C	α Orionis ...	Right	21·79	
	C	α Orionis ...	Left	21·58	
Feb. 14	E	ν Piscium ...	Right	26·16	10. 57. 26·61
	E	ν Piscium ...	Left	24·67	
Feb. 16	L	α Orionis ...	Left	28·77	
	L	α Orionis ...	Right	26·85	
Feb. 20	D	α Orionis ...	Right	18·93	10. 57. 20·12
	D	α Orionis ...	Left	21·30	
Feb. 22	E	α Serpentis .	Right	10. 57. 30·15	10. 57. 27·82
	E	α Serpentis .	Left	25·49	
Feb. 23	C	β Leonis	Left	23·03	10. 57. 21·08
	C	β Leonis	Right	19·12	
Feb. 24	D	β Leonis	Right	17·90	10. 57. 18·03
	D	β Leonis	Left	18·16	
Feb. 28	JC	α Serpentis..	Left	13·34	10. 57. 15·18
	JC	α Serpentis..	Right	17·01	
Mar. 2	E	α Serpentis .	Right	17·86	10. 57. 19·03
	E	α Serpentis .	Left	20·20	
Mar. 7	D	α Orionis ...	Right	19·56	10. 57. 19·25
	D	α Orionis ...	Left	18·94	
Mar. 8	JC	α Orionis ...	Left	22·09	10. 57. 21·76
	JC	α Orionis ...	Right	21·43	
Mar. 14	E	Regulus	Right	23·43	10. 57. 23·40
	E	Regulus	Left	23·73	
Mar. 15	C	α Orionis ...	Left	23·79	
	C	α Orionis ...	Right	22·66	
Mar. 16	D	Regulus	Right	22·52	10. 57. 20·59
	D	Regulus	Left	19·29	
Mar. 20	P	α Serpentis..	Left	19·95	
Mar. 21	E	β Leonis	Right	22·00	10. 57. 21·12
	E	β Leonis	Left	20·24	
Mar. 24	D	α Serpentis .	Right	25·15	10. 57. 24·99
	D	α Serpentis .	Left	24·83	
Mar. 26	D	α Serpentis..	Left	20·00	10. 57. 19·08
	D	α Serpentis..	Right	18·15	
Mar. 27	JC	α Serpentis..	Right	26·06	10. 57. 23·74
	JC	α Serpentis..	Left	21·42	
Mar. 29	E	α Aquilæ ...	Right	16·96	10. 57. 17·64
	E	α Aquilæ ...	Left	17·96	
Mar. 30	D	α Aquilæ ...	Right	17·15	
	D	α Aquilæ ...	Left	18·88	
Mar. 31	JC	α Aquilæ ...	Right	15·82	
	JC	α Aquilæ ...	Left	19·07	
April 8	JC	Regulus	Left	25·59	10. 57. 24·50
	JC	Regulus	Right	23·40	

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DAY, 1867.	Observer.	Name of Star.	Position of Graduated Face of Vertical Circle.	Resulting Zero of Azimuth.	Adopted Zero of Azimuth.
				° ′ ″	° ′ ″
Oct. 7	D	α Aquilæ....	Right	10. 57. 37·83	10. 57. 37·94
	D	α Aquilæ....	Left	38·05	
Oct. 8	S	α Aquilæ....	Left	39·67	10. 57. 40·98
	S	α Aquilæ....	Right	42·29	
Oct. 10	C	α Aquilæ ...	Left	39·30	10. 57. 37·35
	C	α Aquilæ ...	Right	35·79	
Oct. 13	E	α Orionis....	Right	39·06	
	E	α Orionis....	Left	35·24	
Oct. 16	L	Regulus	Right	39·73	10. 57. 40·32
	L	Regulus	Left	40·91	
Oct. 17	E	ζ Pegasi	Right	37·71	10. 57. 37·16
	E	ζ Pegasi	Left	37·88	
Oct. 18	L	ζ Pegasi	Left	37·58	
	L	ζ Pegasi	Right	36·28	
Oct. 19	K	ɣ Piscium ...	Right	37·16	
	K	ɣ Piscium ...	Left	36·17	
Oct. 20	D	ɣ Piscium ...	Right	36·27	
	D	ɣ Piscium ...	Left	38·25	
Oct. 23	D	Regulus	Left	41·44	10. 57. 42·25
	D	Regulus	Right	43·05	
Nov. 2	E	α Aquilæ ...	Left	41·65	10. 57. 42·31
	E	α Aquilæ ...	Right	42·96	
Nov. 3	D	α Aquilæ ...	Left	38·13	10. 57. 37·40
	D	α Aquilæ....	Right	36·66	
Nov. 4	JC	α Aquilæ ...	Left	39·98	10. 57. 40·77
	JC	α Aquilæ ...	Right	41·55	
Nov. 5	C	α Aquilæ ...	Right	43·56	10. 57. 44·26
	C	α Aquilæ ...	Left	44·97	
Nov. 6	E	α Aquilæ....	Left	44·48	10. 57. 42·97
	E	α Aquilæ....	Right	41·45	
Nov. 7	D	α Aquilæ ...	Left	35·31	10. 57. 34·99
	D	α Aquilæ....	Right	34·67	
Nov. 8	JC	α Aquilæ ...	Left	43·13	10. 57. 42·74
	JC	α Aquilæ ...	Right	41·92	
Nov. 11	S	ε Pegasi	Left	39·51	
	S	ε Pegasi	Right	46·38	
Nov. 13	C	ζ Pegasi	Left	36·24	10. 57. 37·29
	C	ζ Pegasi	Right	38·34	
Nov. 14	E	α Orionis ...	Left	42·36	10. 57. 42·68
	E	α Orionis ...	Right	43·00	
Nov. 15	D	ɣ Piscium ...	Left	42·20	10. 57. 41·39
	D	ɣ Piscium ...	Right	40·58	
Nov. 16	JC	ɣ Piscium ...	Left	38·86	10. 57. 39·04
	JC	ɣ Piscium ...	Right	39·22	
Nov. 17	C	α Orionis ...	Right	10. 57. 40·52	10. 57. 40·12
	C	α Orionis ...	Left	39·72	
Nov. 19	D	α Orionis ...	Left	38·50	10. 57. 37·17
	D	α Orionis ...	Right	35·01	
Nov. 20	JC	β Leonis....	Left	37·79	
	JC	β Leonis....	Right	37·36	
Nov. 28	JC	α Aquilæ....	Left	37·23	10. 57. 37·63
	JC	α Aquilæ....	Right	38·02	
Nov. 29	D	α Aquilæ ...	Right	37·29	10. 57. 36·54
	D	α Aquilæ ...	Left	35·78	
Dec. 2	JC	α Aquilæ ...	Left	38·84	10. 57. 38·92
	JC	α Aquilæ ...	Right	38·99	
Dec. 3	D	ɣ Piscium ...	Left	38·30	10. 57. 37·14
	D	ɣ Piscium ...	Right	35·98	
Dec. 4	E	ε Pegasi	Right	34·50	10. 57. 32·29
	E	ε Pegasi	Left	30·03	
Dec. 5	C	α Aquilæ....	Left	37·91	10. 57. 36·86
	C	α Aquilæ....	Right	35·81	
Dec. 6	JC	α Aquilæ ...	Right	38·52	10. 57. 39·00
	JC	α Aquilæ ...	Left	39·47	
Dec. 7	D	ɣ Piscium ...	Right	35·63	10. 57. 36·91
	D	ɣ Piscium ...	Left	38·19	
Dec. 8	E	Regulus	Right	37·21	10. 57. 39·76
	E	Regulus	Left	42·30	
Dec. 9	K	ζ Pegasi	Right	42·32	10. 57. 40·76
	K	ζ Pegasi	Left	39·08	
Dec. 10	JC	α Orionis ...	Right	42·22	
	JC	α Orionis ...	Left	39·42	
Dec. 12	E	ε Pegasi	Right	42·20	10. 57. 42·18
	E	ε Pegasi	Left	42·16	
Dec. 13	C	ɣ Piscium ...	Left	35·74	10. 57. 34·37
	C	ɣ Piscium ...	Right	33·00	
Dec. 15	D	Regulus	Right	40·56	10. 57. 40·36
	D	Regulus	Left	40·16	
Dec. 17	K	β Leonis....	Right	39·27	10. 57. 39·38
	K	β Leonis....	Left	39·49	
Dec. 18	L	β Leonis....	Right	35·93	10. 57. 34·94
	L	β Leonis....	Left	33·94	
Dec. 19	S	Regulus	Left	37·83	10. 57. 38·22
	S	Regulus	Right	38·61	
Dec. 22	E	β Leonis....	Right	35·34	10. 57. 34·54
	E	β Leonis....	Left	33·73	

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Separate Results for ZENITH POINT of ALTAZIMUTH, obtained by OBSERVATIONS of the COLLIMATOR.

DAY, 1867.		Observer.	Resulting Zenith Point.	Adopted Zenith Point.
			° ′ ″	° ′ ″
January	8	C	58. 6. 48·43	58. 6. 48·14
	11	E	47·64	
	13	D	48·21	
	15	E	47·76	
	16	C	47·91	
	17	L	49·32	
	18	JC	48·46	
	19	E	46·92	
	23	E	47·09	
	28	C	48·78	
	30	JC	47·98	
February	1	C	49·22	
February	6	E	47·03	58. 6. 49·06
	8	JC	49·66	
	10	E	49·30	
	11	C	49·70	
	14	E	48·40	
	15	C	49·31	
	16	L	50·19	
	20	D	49·42	
	22	E	49·01	
	23	C	48·86	
	24	D	49·43	
	28	JC	48·88	
March	2	E	48·63	
March	7	D	48·42	58. 6. 48·94
	8	JC	48·64	
	14	E	48·18	
	15	C	48·61	
	16	D	48·90	
	20	P	49·42	
	21	E	49·33	
	24	D	49·67	
	25	E	47·76	
	26	D	49·52	
	27	JC	49·71	
	28	C	48·75	
	29	E	48·66	
	30	D	49·36	
	31	JC	49·15	
April	8	JC	51·08	58. 6. 49·23
	9	D	49·03	
	10	C	48·91	
	11	E	49·28	
	12	JC	49·69	
	14	C	48·80	
	15	E	49·22	
	16	JC	48·12	
	17	L	50·13	
	18	C	49·09	
	21	D	49·11	
	23	E	49·50	
	26	C	48·75	
	27	E	48·55	
May	5	JC	52·11	58. 6. 52·11
May	6	E	58. 6. 55·94	58. 6. 56·46
	7	D	56·72	
	8	C	56·17	
	9	JC	58·92	
	10	E	56·82	
	11	S	58·93	
	17	JC	57·15	
	18	E	55·29	
	21	JC	56·46	
	22	E	55·48	
	23	JC	54·94	
	24	D	55·71	
	26	E	56·04	
	27	JC	56·33	
	28	D	55·94	
June	6	D	58. 7. 5·20	58. 7. 5·97
	8	JC	6·12	
	9	E	5·56	
	10	D	5·82	
	11	C	6·92	
	12	JC	6·19	
	13	E	4·28	58. 7. 4·81
	14	K	4·95	
	16	JC	6·19	
	17	E	5·05	
	22	S	4·62	
	24	JC	4·18	
	26	D	4·40	
July	4	E	5·82	58. 7. 5·56
	5	D	5·49	
	7	C	6·08	
	8	E	4·41	
	9	D	5·59	
	10	JC	5·83	
	11	C	6·69	
July	12	E	4·91	58. 7. 5·25
	13	D	4·60	
	14	JC	5·03	
	16	L	7·12	
	18	D	4·90	
	19	C	4·91	
	21	JC	5·55	
	22	D	5·56	
	23	HC	5·23	
	24	E	4·78	
	27	K	5·14	
August	4	E	4·66	58. 7. 5·72
	6	E	5·58	
	8	L	7·69	
	9	C	5·88	
	10	E	4·93	
	11	JC	5·90	
	12	D	6·32	
	13	C	6·36	

May 2 to 9. The instrument was cleaned by a workman from Mr. Simms.

June 1. The comb, or revolution-counter, of microscope A was moved through a space equivalent to an increase of one revolution in the reading of the micrometer.

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Moon's Tabular Errors in R. A. and N.P.D., from the Observations with the Altazimuth,

DAY, 1867.	Observer.	No. for Reference.	p	q	Apparent Error of Tabular Zenith Distance.	No. for Reference.	r	s	Apparent Error of Tabular Azimuth.	Resulting Error of Tabular Right Ascension.	Resulting Error of Tabular North Polar Distance.
					"				"	s	"
February 14	E	3	−0·604	+0·797	+ 1·29	4	+1·049	−0·786	+ 4·39	− 0·13	+ 3·31
	E	5	−0·595	+0·804	+ 1·84	6	+1·081	−0·787	+ 4·67		
February 16	L	10	−0·634	+0·772	+ 0·58	9	+0·884	−0·727	+ 0·03	+ 0·06	+ 1·54
	L	12	−0·627	+0·779	+ 2·82	11	+0·903	−0·733	+ 0·77		
February 17	J C	16	−0·325	+0·945	− 1·33	15	+1·394	−0·501	+ 7·56	− 0·27	+ 0·52
	J C	17	−0·305	+0·951	− 0·20	18	+1·448	−0·441	+ 4·31		
February 20	D	22	−0·609	+0·794	− 2·23	21	+0·806	−0·622	− 4·13	+ 0·18	− 1·66
	D	24	−0·605	+0·797	+ 2·92	23	+0·811	−0·620	− 2·36		
February 22	E	25	+0·149	+0·989	+ 1·62	26	+1·133	+0·195	+ 1·71	− 0·09	+ 0·35
	E	27	+0·185	+0·983	− 0·50	28	+1·122	+0·222	+ 1·06		
February 23	C	34	−0·548	+0·837	− 0·78	33	+0·843	−0·559	+ 0·69	− 0·08	− 0·10
	C	36	−0·530	+0·848	− 0·60	35	+0·860	−0·544	+ 1·13		
February 24	D	38	−0·353	+0·935	+ 1·59	37	+0·982	−0·385	− 4·96	+ 0·29	− 0·32
	D	40	−0·334	+0·942	+ 0·71	39	+0·996	−0·363	− 3·59		
February 28	J C	44	−0·389	+0·921	+ 0·16	43	+0·941	−0·407	− 4·01	+ 0·21	+ 0·63
	J C	45	−0·378	+0·925	+ 3·32	46	+0·954	−0·386	− 1·20		
March 2	E	49	−0·533	+0·847	+ 4·95	50	+0·857	−0·531	− 0·31	+ 0·13	+ 2·78
	E	51	−0·519	+0·855	+ 1·77	52	+0·870	−0·516	− 0·06		
March 7	D	3	+0·618	+0·786	− 1·21	4	+0·791	+0·623	− 0·49	+ 0·08	− 0·65
March 8	J C	8	+0·622	+0·784	+ 3·66	7	+0·803	+0·634	+ 3·74	− 0·34	+ 0·60
March 14	E	11	+0·370	+0·928	+ 1·36	12	+1·500	+0·624	+ 2·14	− 0·05	− 0·46
	E	13	+0·403	+0·915	− 1·66	14	+1·448	+0·661	+ 0·54		
March 15	C	18	−0·594	+0·805	− 0·08	17	+1·020	−0·757	+ 1·51	− 0·03	− 0·05
	C	20	−0·584	+0·812	− 0·54	19	+1·041	−0·757	− 0·66		
March 16	D	23	−0·288	+0·957	+ 2·74	24	+1·504	−0·426	− 2·40	+ 0·17	+ 0·27
	D	25	−0·254	+0·968	− 0·90	28	+1·578	−0·299	− 4·94		
March 17	J C	30	+0·177	+0·985	− 1·89	29	+1·477	+0·240	+ 0·32	+ 0·04	− 2·91
	J C	32	+0·214	+0·977	− 4·04	31	+1·454	+0·297	− 0·49		
March 20	P	34	+0·236	+0·972	− 1·12	33	+1·188	+0·257	− 7·53	+ 0·41	+ 2·16
	P	36	+0·284	+0·958	+ 2·08	35	+1·157	+0·318	− 8·19		
March 21	E	38	−0·514	+0·857	+ 3·07	39	+0·908	−0·536	+ 0·95	− 0·05	+ 1·11
	E	40	−0·501	+0·866	− 1·90	41	+0·921	−0·526	+ 1·58		
March 24	D	44	−0·280	+0·959	+ 1·54	45	+1·027	−0·284	− 3·02	+ 0·21	+ 0·52
	D	46	−0·255	+0·967	+ 1·06	47	+1·036	−0·263	− 2·87		
March 25	E	50	−0·283	+0·958	− 3·85	51	+1·018	−0·274	− 1·69	+ 0·06	− 2·00
	E	1	−0·248	+0·968	+ 0·44	2	+1·028	−0·249	− 1·06		
March 26	D	3	−0·280	+0·959	− 0·32	4	+1·007	−0·286	− 4·40	+ 0·34	− 1·17
	D	5	−0·257	+0·966	+ 0·64	6	+1·016	−0·263	− 5·96		
March 27	J C	10	−0·336	+0·941	+ 2·60	9	+0·970	−0·358	+ 2·32	− 0·12	+ 3·32
	J C	12	−0·318	+0·948	+ 2·57	11	+0·982	−0·337	+ 3·28		

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					"				"	s	"
March 29	E	16	−0·422	+0·906	− 2·38	15	+0·920	−0·449	+ 0·58	− 0·22	− 1·74
	E	17	−0·411	+0·912	− 3·46	18	+0·946	−0·416	+ 3·96		
March 30	D	21	−0·435	+0·900	− 0·54	23	+0·941	−0·439	− 3·68	+ 0·19	− 1·09
	D	22	−0·427	+0·903	+ 1·01	24	+0·949	−0·430	− 2·60		
March 31	J C	30	−0·545	+0·839	+ 0·45	29	+0·846	−0·555	+ 0·51	+ 0·05	+ 1·81
	J C	31	−0·537	+0·844	+ 3·38	32	+0·860	−0·543	+ 0·24		
April 7	E	33	+0·644	+0·765	− 2·39	34	+0·807	+0·679	+ 5·46	− 0·13	− 4·71
	E					35	+0·800	+0·673	+ 3·94		
April 8	J C	37	+0·632	+0·775	+ 1·18	36	+0·923	+0·750	+ 1·85	− 0·02	− 1·80
	J C	38	+0·634	+0·773	− 1·56	39	+0·902	+0·744	− 0·62		
April 9	D	43	+0·605	+0·793	− 0·09	42	+1·040	+0·784	+ 0·13	+ 0·12	+ 0·31
	D	44	+0·610	+0·791	− 1·58	45	+1·003	+0·780	− 4·23		
April 10	C	49	+0·449	+0·894	− 1·09	48	+1·429	+0·686	+ 1·55	+ 0·02	− 0·67
	C	51	+0·463	+0·887	− 0·34	50	+1·386	+0·708	− 1·34		
April 11	E	1	+0·408	+0·915	− 3·02	2	+1·414	+0·647	− 5·36	+ 0·16	− 1·36
	E	3	+0·434	+0·902	− 1·38	4	+1·362	+0·676	+ 0·76		
April 12	J C	7	−0·235	+0·972	− 3·16	9	+1·600	−0·331	+ 4·38	− 0·23	− 3·37
	J C	8	−0·212	+0·976	− 4·88	10	+1·611	−0·305	+ 4·06		
April 14	C	14	−0·416	+0·909	+ 0·47	13	+1·148	−0·569	− 0·36	+ 0·01	+ 1·21
	C	15	−0·377	+0·926	+ 1·68	16	+1·248	−0·490	+ 1·86		
April 15	E	19	−0·411	+0·912	+ 3·39	20	+1·128	−0·499	+ 2·60	− 0·13	+ 2·63
	E	21	−0·375	+0·927	− 0·08	22	+1·175	−0·456	+ 4·40		
April 16	J C	27	+0·143	+0·990	− 1·11	25	+1·273	−0·009	+ 3·89	− 0·15	− 0·32
	J C	28	+0·156	+0·987	+ 1·17	26	+1·273	+0·009	+ 2·02		
April 17	L	33	−0·545	+0·839	+ 4·53	32	+0·842	−0·587	+ 0·52	+ 0·16	+ 3·87
	L					34	+0·880	−0·565	− 0·05		
April 19	E	37	−0·397	+0·918	+ 1·09	38	+0·981	−0·412	− 1·19	+ 0·14	+ 1·27
	E	39	−0·376	+0·926	+ 2·81	40	+0·994	−0·393	− 1·76		
April 21	D	44	−0·445	+0·895	− 1·46	43	+0·884	−0·494	− 3·83	+ 0·25	− 2·32
	D	45	−0·440	+0·897	+ 0·45	46	+0·922	−0·445	− 4·78		
April 23	E	47	−0·224	+0·975	− 2·85	48	+1·028	−0·222	+ 1·22	− 0·06	− 1·61
	E	49	−0·197	+0·980	− 0·69	50	+1·037	−0·194	0·00		
April 26	C	2	−0·420	+0·907	+ 0·98	1	+0·929	−0·444	− 5·09	+ 0·34	− 1·19
April 27	E	3	−0·492	+0·870	− 2·07	4	+0·897	−0·500	− 1·95	+ 0·06	− 3·67
	E	5	−0·478	+0·879	− 3·53	6	+0·909	−0·488	− 3·22		
May 5	J C	12	+0·618	+0·787	− 5·26	11	+0·791	+0·627	+ 0·37	+ 0·19	− 4·57
	J C					13	+0·793	+0·620	+ 1·09		
May 6	E	14	+0·649	+0·761	+ 0·14	15	+0·795	+0·674	− 0·67	+ 0·10	− 1·01
	E	16	+0·646	+0·764	− 3·58	17	+0·792	+0·666	− 0·32		
May 7	D	21	+0·655	+0·755	− 1·37	20	+0·854	+0·738	− 1·52	+ 0·11	+ 1·24
	D	22	+0·656	+0·755	+ 1·18	23	+0·834	+0·724	− 2·94		

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					"				"	s	"
July 27	K	50	−0·650	+0·760	+ 1·15	51	+0·804	−0·692	− 5·28	+ 0·36	− 2·97
	K	52	−0·654	+0·757	+ 1·11	53	+0·823	−0·714	− 7·32		
August 4	E	2	+0·583	+0·813	+ 1·87	1	+0·842	+0·591	− 1·58	+ 0·01	+ 2·44
August 6	E	5	+0·460	+0·887	− 0·39	6	+0·921	+0·489	+ 2·14	− 0·06	− 1·16
	E	7	+0·477	+0·878	− 0·86	8	+0·906	+0·503	+ 0·57		
August 8	L	12	+0·117	+0·993	− 0·47	11	+1·076	+0·112	− 5·09	+ 0·26	− 1·34
	L	14	+0·159	+0·987	− 3·20	13	+1·067	+0·156	− 2·49		
August 9	C	21	+0·144	+0·989	− 0·30	19	+1·061	+0·123	+ 0·70	− 0·02	− 0·58
	C	22	+0·158	+0·987	− 0·77	20	+1·058	+0·138	− 0·06		
August 10	E	23	−0·130	+0·992	− 1·25	25	+1·057	−0·107	− 0·62	0·00	+ 0·32
	E	24	−0·116	+0·994	+ 1·89	26	+1·059	−0·092	+ 0·57		
August 11	J C	30	−0·287	+0·957	− 1·40	29	+0·993	−0·312	+ 0·74	− 0·06	− 1·96
	J C	31	−0·275	+0·961	− 2·82	32	+1·004	−0·288	− 0·28		
August 12	D	36	−0·368	+0·930	+ 0·21	35	+0·952	−0·391	− 4·95	+ 0·30	− 2·78
	D	38	−0·346	+0·938	− 2·36	37	+0·965	−0·370	− 5·33		
August 13	C	42	−0·278	+0·960	+ 2·03	41	+1·009	−0·307	− 2·11	+ 0·16	+ 0·87
	C	44	−0·265	+0·964	+ 0·93	43	+1·015	−0·295	− 2·14		
August 14	D	50	−0·494	+0·870	− 1·12	49	+0·879	−0·510	− 6·14	+ 0·36	− 3·83
	D	52	−0·470	+0·883	− 0·52	51	+0·898	−0·490	− 7·03		
August 15	E	1	−0·459	+0·888	+ 2·64	2	+0·934	−0·471	+ 0·22	+ 0·02	+ 1·10
	E	3	−0·441	+0·897	− 0·40						
August 16	J C	5	−0·533	+0·845	+ 2·83	4	+0·865	−0·555	− 0·34	+ 0·23	+ 3·21
	J C	7	−0·527	+0·849	+ 6·22	6	+0·878	−0·545	− 2·07		
August 18	S	10	−0·139	+0·990	+ 3·62	12	+1·291	−0·114	−14·79	+ 0·74	+ 1·04
	S	11	−0·105	+0·994	+ 1·12	13	+1·301	−0·047	−13·62		
August 20	J C	15	−0·618	+0·786	+ 1·77	14	+0·832	−0·657	− 5·58	+ 0·30	− 0·81
	J C	16	−0·618	+0·786	+ 2·42	17	+0·844	−0·659	− 2·91		
August 21	C	23	−0·628	+0·778	+ 0·07	22	+0·786	−0·633	− 5·75	+ 0·34	− 3·97
	C					24	+0·786	−0·638	− 7·19		
August 22	J C	28	−0·640	+0·768	− 0·50	27	+0·791	−0·658	− 1·25	+ 0·05	+ 1·08
	J C	30	−0·642	+0·766	+ 3·15	29	+0·792	−0·661	+ 1·45		
August 23	L	32	−0·652	+0·759	− 0·24	31	+0·805	−0·692	− 5·93	+ 0·32	− 3·52
	L	34	−0·652	+0·759	+ 0·83	33	+0·818	−0·705	− 6·36		
September 3	J C	40	+0·473	+0·881	+ 1·29	39	+0·908	+0·489	+ 2·46	− 0·14	− 1·24
	J C	42	+0·489	+0·872	− 1·55	41	+0·901	+0·496	+ 2·35		
September 4	L	46	+0·351	+0·936	+ 1·50	45	+0·991	+0·359	− 7·88	+ 0·46	+ 0·74
	L	48	+0·383	+0·923	− 5·02	47	+0·970	+0·391	− 5·75		
September 5	E	50	+0·313	+0·950	+ 0·31	51	+0·988	+0·339	− 0·31	+ 0·10	+ 0·30
	E	1	+0·336	+0·941	− 0·67	2	+0·975	+0·362	− 2·69		
September 6	C	6	+0·158	+0·988	+ 1·07	5	+1·051	+0·152	− 4·77	+ 0·27	+ 1·25
	C	8	+0·184	+0·983	+ 0·07	7	+1·044	+0·181	− 3·76		

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					″				″	s	″
September 7	J C	11	−0·143	+0·990	− 2·51	12	+1·049	−0·152	− 0·80	− 0·01	− 2·81
	J C	13	−0·130	+0·992	− 3·09	14	+1·054	−0·122	+ 0·24		
September 8	D	17	−0·116	+0·994	− 2·51	18	+1·057	−0·122	− 2·36	+ 0·13	− 2·76
September 10	C	19	−0·394	+0·919	− 0·92	20	+0·964	−0·402	− 3·34	+ 0·13	− 1·61
	C	21	−0·373	+0·928	− 0·63	22	+0·971	−0·392	− 1·52		
September 11	J C	26	+0·135	+0·991	+ 0·46	25	+1·104	+0·151	− 0·60	+ 0·03	+ 0·53
September 12	D	27	−0·517	+0·856	+ 0·74	28	+0·889	−0·529	− 1·63	+ 0·09	− 1·03
	D	29	−0·503	+0·864	− 1·08	30	+0·903	−0·517	− 1·96		
September 13	E	33	−0·493	+0·870	+ 0·53	35	+0·944	−0·515	+ 1·29		
	E	34	−0·487	+0·874	− 0·51	36	+0·949	−0·511	− 0·50	+ 0·04	+ 0·55
	E	37	−0·466	+0·886	+ 1·47	39	+0·974	−0·491	+ 0·89		
	E	38	−0·458	+0·890	+ 1·48	40	+0·977	−0·487	− 2·64		
September 14	C	45	−0·531	+0·847	+ 4·06	46	+0·920	−0·568	− 2·38	+ 0·24	+ 2·12
	C	47	−0·524	+0·852	+ 3·27	48	+0·929	−0·563	− 1·77		
September 15	E	49	−0·581	+0·813	+ 1·92	50	+0·867	−0·620	− 0·40	+ 0·12	+ 1·00
	E	51	−0·577	+0·816	+ 1·81	52	+0·883	−0·617	− 1·56		
September 16	D	6	−0·626	+0·780	+ 0·49	5	+0·800	−0·642	− 3·40	+ 0·17	− 2·08
	D	8	−0·624	+0·782	− 0·61	7	+0·803	−0·643	− 3·29		
September 17	J C	9	−0·345	+0·937	+ 2·37	10	+1·380	−0·482	−10·00	+ 0·51	+ 0·85
	J C	11	−0·313	+0·949	+ 4·21	12	+1·398	−0·462	−10·18		
September 18	L	15	−0·624	+0·782	− 1·97	13	+0·791	−0·617	− 8·46	+ 0·19	− 6·71
	L	16	−0·626	+0·780	− 5·14	14	+0·789	−0·626	− 4·12		
September 19	E	19	−0·645	+0·764	+ 0·21	20	+0·873	−0·734	− 7·39	+ 0·26	− 2·29
	E	21	−0·631	+0·776	+ 1·11	22	+0·931	−0·751	− 2·87		
September 20	D	26	−0·635	+0·774	+ 4·03	25	+0·789	−0·645	− 4·29	+ 0·28	− 1·02
	D	28	−0·640	+0·770	− 0·55	27	+0·790	−0·654	− 3·30		
September 22	L	32	−0·618	+0·786	− 1·85	31	+0·794	−0·619	− 1·29	+ 0·01	− 2·05
	L	34	−0·624	+0·782	− 1·29	33	+0·791	−0·628	− 1·38		
September 23	E	35	−0·640	+0·768	+ 1·56	36	+0·847	−0·703	− 0·98	− 0·03	− 0·17
	E	37	−0·637	+0·771	− 2·36	38	+0·860	−0·708	+ 1·47		
September 24	D	41	−0·634	+0·774	+ 0·34	42	+0·814	−0·667	− 3·79	+ 0·24	− 0·60
	D	43	−0·632	+0·775	+ 3·22	44	+0·819	−0·669	− 2·79		
September 25	J C	50	−0·624	+0·782	+ 0·74	49	+0·803	−0·643	− 4·19	+ 0·27	+ 0·61
	J C	52	−0·621	+0·783	+ 5·12	51	+0·810	−0·645	− 1·39		
October 1	J C	2	+0·453	+0·891	+ 0·40	1	+0·917	+0·467	− 0·01	− 0·03	+ 0·18
	J C	4	+0·470	+0·883	+ 0·34	3	+0·911	+0·475	+ 0·68		
October 3	D	8	+0·428	+0·903	− 1·69		+0·991	+0·325	− 3·14	+ 0·23	− 0·33
October 5	E	11	+0·171	+0·985	− 4·22	12	+1·034	+0·209	+ 1·54	+ 0·08	− 3·34
	E	13	+0·211	+0·978	− 2·76	14	+1·029	+0·222	− 2·37		
October 7	D	18	−0·350	+0·936	− 1·36	17	+0·980	−0·367	− 3·97	+ 0·18	− 2·92
	D	20	−0·327	+0·945	− 2·33	19	+0·987	−0·355	− 3·39		

The "No. for Reference" is that in the section of "Comparison of Tabular Azimuths and Zenith Distances with Observed Azimuths and Zenith Distances."

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DAY, 1867.	Observer.	No. for Reference.	p	q	Apparent Error of Tabular Zenith Distance.	No. for Reference.	r	s	Apparent Error of Tabular Azimuth.	Resulting Error of Tabular Right Ascension.	Resulting Error of Tabular North Polar Distance.
					"				"	s	"
October 8	S	24	−0·176	+0·984	+ 3·14	23	+0·998	−0·365	− 0·15	+ 0·15	+ 0·46
	S	25	−0·162	+0·987	− 1·50	26	+1·091	−0·148	− 4·13		
October 10	C	32	−0·546	+0·838	− 0·64	31	+0·853	−0·566	− 5·75	+ 0·31	− 3·06
	C	34	−0·529	+0·849	+ 0·40	33	+0·867	−0·557	− 5·57		
October 12	P	36	−0·610	+0·793	− 1·21	35	+0·805	−0·623	− 4·46	+ 0·25	− 3·81
	P	37	−0·389	+0·921	− 1·55	38	+1·137	−0·446	− 6·94		
October 13	E	39	+0·617	+0·787	− 2·75	40	+0·825	+0·650	− 1·75	+ 0·20	− 0·62
	E	41	+0·621	+0·784	− 1·96	42	+0·816	+0·647	− 2·40		
October 14	C	46	−0·433	+0·902	+ 1·71	45	+1·174	−0·600	− 6·31	+ 0·31	− 0·07
	C	47	−0·408	+0·912	+ 1·97	48	+1·245	−0·557	− 4·73		
October 16	L	50	+0·593	+0·804	− 8·68	49	+1·057	+0·764	− 5·26	+ 0·45	− 1·73
	L	52	+0·599	+0·800	− 1·72	51	+1·026	+0·764	− 5·40		
October 17	E	3	−0·647	+0·763	+ 0·07	4	+0·796	−0·679	− 7·17	+ 0·44	− 3·33
	E	5	−0·650	+0·760	+ 3·05	6	+0·801	−0·688	− 7·44		
October 18	C	12	−0·645	+0·765	+ 2·42	11	+0·792	−0·660	− 4·60	+ 0·36	− 1·27
	C	14	−0·649	+0·762	+ 2·21	13	+0·794	−0·676	− 5·14		
October 19	K	15	−0·626	+0·781	+ 5·32	17	+0·791	−0·656	− 8·36	+ 0·53	− 2·42
	K	16	−0·635	+0·774	+ 0·42	18	+0·791	−0·660	− 6·75		
October 20	D	24	−0·623	+0·783	− 1·05	23	+0·791	−0·626	− 3·44	+ 0·26	− 2·39
	D	26	−0·629	+0·778	+ 2·10	25	+0·789	−0·634	− 5·60		
October 23	D	27	−0·474	+0·880	+ 3·57	28	+1·043	−0·561	− 3·44	+ 0·24	+ 0·58
	D	29	−0·455	+0·890	+ 0·83	30	+1·082	−0·536	− 3·64		
November 2	E	33	+0·171	+0·985	− 4·13	34	+1·035	+0·209	+ 2·48	− 0·14	− 2·38
	E	35	+0·211	+0·978	− 0·14	36	+1·016	+0·263	+ 0·77		
November 3	D	42	−0·144	+0·989	+ 2·20	41	+1·056	−0·170	− 6·34	+ 0·44	+ 1·48
	D	44	−0·116	+0·993	+ 2·36	43	+1·063	−0·140	− 6·50		
November 4	J C	45	−0·188	+0·982	+ 2·09	46	+1·068	−0·189	+ 1·39	+ 0·04	+ 2·01
	J C	47	−0·146	+0·989	+ 2·06	48	+1·076	−0·159	− 1·90		
November 5	C	51	−0·420	+0·907	− 1·36	52	+0·961	−0·433	+ 2·98	− 0·09	+ 0·51
	C	1	−0·400	+0·916	+ 1·16	2	+0·976	−0·414	+ 0·14		
November 6	E	5	−0·254	+0·967	+ 0·39	6	+1·098	−0·273	+ 0·68	− 0·04	+ 0·11
	E	7	−0·227	+0·973	− 0·44	8	+1·104	−0·257	+ 0·58		
November 7	D	12	−0·556	+0·832	− 4·24	11	+0·851	−0·577	− 8·69	+ 0·32	− 7·45
	D	14	−0·545	+0·838	− 2·94	13	+0·865	−0·570	− 8·07		
November 8	J C	17	−0·566	+0·824	− 1·60	18	+0·873	−0·591	− 0·85	− 0·06	− 0·96
	J C	19	−0·562	+0·828	− 0·96	20	+0·880	−0·589	+ 1·24		
November 10	E	24	+0·176	+0·985	+ 0·81	23	+1·450	+0·205	− 2·85	+ 0·15	+ 0·48
	E	26	+0·232	+0·973	− 0·77	25	+1·411	+0·309	− 3·65		
November 11	S	29	−0·631	+0·775	+ 2·64	27	+0·820	−0·673	− 5·56	+ 0·30	− 1·16
	S	30	−0·631	+0·775	+ 0·50	28	+0·823	−0·673	− 3·46		
	S	33	−0·626	+0·779	+ 4·44	31	+0·839	−0·681	− 4·17		
	S	34	−0·625	+0·780	− 0·02	32	+0·843	−0·682	− 4·71		

The "No. for Reference" is that in the section of "Comparison of Tabular Azimuths and Zenith Distances with Observed Azimuths and Zenith Distances."

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DAY, 1867.	Observer.	No. for Reference.	p	q	Apparent Error of Tabular Zenith Distance.	No. for Reference.	r	s	Apparent Error of Tabular Azimuth.	Resulting Error of Tabular Right Ascension.	Resulting Error of Tabular North Polar Distance.
					"				"	s	"
November 13	C	38	−0·648	+0·762	+ 1·18	37	+0·796	−0·677	− 7·56		
	C	40	−0·649	+0·761	+ 0·80	39	+0·799	−0·681	− 7·95	+ 0·44	− 4·05
November 14	E	43	−0·526	+0·851	+ 1·15	44	+1·278	−0·766	− 1·10		
	E	45	−0·504	+0·864	− 1·79	46	+1·328	−0·751	− 4·67	+ 0·10	− 1·26
November 15	D	49	−0·650	+0·760	+ 3·66	50	+0·796	−0·681	− 7·53		
	D	51	−0·652	+0·758	+ 1·21	52	+0·801	−0·690	− 5·73	+ 0·45	− 2·25
November 16	J C	2	−0·648	+0·762	+ 2·67	1	+0·799	−0·680	− 5·35		
	J C	4	−0·650	+0·761	+ 2·28	3	+0·805	−0·687	− 6·07	+ 0·40	− 1·63
November 17	C	8	−0·542	+0·840	+ 3·40	7	+1·067	−0·703	− 2·94		
	C	10	−0·525	+0·850	+ 1·05	9	+1·099	−0·695	− 1·39	+ 0·18	+ 1·02
November 19	D	14	−0·615	+0·788	+ 2·30	13	+0·814	−0·640	− 3·93		
	D	18	−0·605	+0·797	+ 4·49	15	+0·823	−0·641	− 3·75	+ 0·34	+ 0·42
November 20	J C	20	−0·442	+0·897	+ 3·13	19	+1·035	−0·524	− 4·53		
	J C	22	−0·421	+0·907	+ 3·33	21	+1·058	−0·506	− 4·39	+ 0·32	+ 1·25
November 28	J C	26	+0·417	+0·908	− 2·43	25	+0·931	+0·418	− 0·53		
	J C	28	+0·446	+0·894	− 3·50	27	+0·919	+0·435	− 1·06	+ 0·14	− 2·36
November 29	D	32	+0·286	+0·957	− 1·04	31	+1·003	+0·287	− 6·48		
	D	34	+0·311	+0·951	− 1·53	33	+0·993	+0·311	− 4·73	+ 0·39	+ 0·37
December 2	J C	38	−0·176	+0·984	+ 1·08	37	+1·074	−0·208	+ 2·21		
	J C	40	−0·148	+0·989	− 0·23	39	+1·083	−0·179	+ 0·42	− 0·08	+ 0·61
December 3	D	44	+0·385	+0·922	+ 3·11	43	+1·027	+0·371	− 5·18		
	D	46	+0·406	+0·913	+ 1·41	45	+0·987	+0·425	− 5·03	+ 0·24	+ 3·97
December 4	E	49	−0·127	+0·992	− 1·31	50	+1·171	−0·131	− 2·34		
	E	51	−0·096	+0·995	+ 0·41	52	+1·178	−0·095	− 4·37	+ 0·19	− 0·76
December 5	C	1	−0·481	+0·876	+ 0·40	3	+0·973	−0·516	− 3·59		
	C	2	−0·472	+0·881	− 0·18	4	+0·981	−0·510	− 3·19	+ 0·18	− 1·37
December 6	J C	8	−0·505	+0·863	− 3·88	7	+0·968	−0·567	+ 3·06		
	J C	9	−0·498	+0·867	+ 0·37	10	+0·991	−0·555	+ 0·17	− 0·14	− 0·81
December 7	D	13	−0·500	+0·867	− 1·78	14	+1·042	−0·588	− 6·05		
	D	15	−0·483	+0·876	− 0·73	16	+1·069	−0·575	− 5·19	+ 0·23	− 3·39
December 8	E	19	+0·635	+0·773	− 0·31	20	+0·791	+0·650	+ 0·93		
	E	21	+0·633	+0·774	− 4·23	22	+0·789	+0·644	− 3·97	− 0·03	− 3·27
December 9	K	25	−0·626	+0·780	− 2·15	26	+0·883	−0·705	+ 3·01		
	K	27	−0·618	+0·786	+ 1·82	28	+0·912	−0·711	− 4·05	+ 0·02	− 2·38
December 10	J C	32	−0·542	+0·841	− 3·34	31	+1·108	−0·757	+ 0·25		
	J C	33	−0·537	+0·845	+ 3·58	36	+1·209	−0·738	− 7·13	+ 0·14	− 1·47
	J C	34	−0·531	+0·847	− 4·93						
	J C	35	−0·521	+0·853	+ 4·03						
December 12	E	42	−0·634	+0·774	− 1·74	41	+0·793	−0·633	+ 4·11		
	E	44	−0·637	+0·772	− 4·13	43	+0·790	−0·647	+ 1·72	− 0·29	− 0·46
December 13	C	46	−0·653	+0·758	+ 0·80	45	+0·813	−0·703	− 7·42		
	C	48	−0·654	+0·757	− 0·86	47	+0·823	−0·711	− 8·16	+ 0·38	− 4·73

The "No. for Reference" is that in the section of "Comparison of Tabular Azimuths and Zenith Distances with Observed Azimuths and Zenith Distances."

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Moon's Tabular Errors in R. A. and N. P. D., from Observations with the Altazimuth.

DAY, 1867.	Observer.	No. for Reference.	p	q	Apparent Error of Tabular Zenith Distance.	No. for Reference.	r	s	Apparent Error of Tabular Azimuth.	Resulting Error of Tabular Right Ascension.	Resulting Error of Tabular North Polar Distance.
					"				"	s	"
December 15	D	53	+0·423	+0·907	+ 1·23	51	+1·268	+0·549	− 4·67	+ 0·22	+ 2·59
	D	54	+0·435	+0·901	+ 0·69	52	+1·250	+0·563	− 6·26		
December 17	K	3	−0·458	+0·889	+ 3·08	4	+1·071	−0·523	− 6·54	+ 0·44	+ 0·63
	K	5	−0·427	+0·904	+ 3·82	6	+1·121	−0·480	− 7·16		
December 18	L	10	−0·530	+0·848	+ 4·82	9	+0·902	−0·574	− 7·31	+ 0·48	− 1·23
	L	12	−0·517	+0·856	+ 0·57	11	+0·918	−0·565	− 7·09		
December 19	S	16	−0·463	+0·887	+ 3·75	15	+0·937	−0·513	− 4·70	+ 0·34	+ 1·46
	S	17	−0·446	+0·896	+ 3·50	18	+0·981	−0·476	− 3·65		
December 22	E	21	−0·493	+0·871	+ 2·04	22	+0·889	−0·493	− 8·86	+ 0·49	− 1·15
	E	23	−0·477	+0·880	+ 2·81	24	+0·901	−0·477	− 4·91		

The "No. for Reference" is that in the section of "Comparison of Tabular Azimuths and Zenith Distances with Observed Azimuths and Zenith Distances."

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ROYAL OBSERVATORY, GREENWICH.

CATALOGUE

OF

CONCLUDED MEAN RIGHT ASCENSIONS AND NORTH POLAR DISTANCES,

FOR 1867, JANUARY 1,

OF STARS OBSERVED IN THE YEAR 1867,

WITH THE ANNUAL VARIATIONS:

(The North Polar Distances being corrected for Discordance of Direct and Reflexion-Observations, for Errors of Division, and for the Flexure of Telescope of the Transit-Circle :)

ALSO,

NEW CONSTANTS FOR STARS INCLUDED IN THE CATALOGUE

NOT INCLUDED IN THE

GREENWICH SEVEN-YEAR CATALOGUE FOR 1860

OR IN LATER ANNUAL CATALOGUES.

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CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS AND MEAN NORTH POLAR DISTANCES, FOR JAN. 1, 1867, OF STARS OBSERVED IN THE YEAR 1867; WITH THE ANNUAL VARIATIONS.

(The N.P.D.'s are corrected for Discordance of Direct and Reflexion-Observations, for Errors of Division, and for Flexure of Telescope of the Transit-Circle.)

No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1867, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1867, Jan. 1. D.	Mean N.P.D. 1867, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
1	α Andromedæ	7	0·71	0. 1. 31·05	+ 3·086	4	3	61. 38. 38·40	39·38	7	0·85	38·82	— 19·90
2	87 Pegasi	2	0·72	0. 2. 11·01	3·088	2		72. 31. 38·66		2	0·72	38·66	20·07
3	γ Pegasi	16	0·70	0. 6. 23·34	3·081	2		75. 33. 21·29		2	0·49	21·29	20·03
4	23 Andromedæ	2	0·72	0. 6. 36·83	3·096	2		49. 41. 57·05		2	0·72	57·05	19·97
5	7 Ceti	1	0·80	0. 7. 52·95	3·061	1		109. 40. 12·14		1	0·80	12·14	19·96
6	Bradley 6	1	0·87	0. 8. 44·14	3·281	3	3	13. 47. 19·20	18·55	6	0·89	18·87	20·01
7	σ Andromedæ	2	0·72	0. 11. 23·19	3·119	2		53. 57. 10·00		2	0·72	10·00	19·99
8	Radcliffe 56	1	0·96	0. 12. 12·34	6·224	2		1. 17. 32·31		2	0·91	32·31	20·03
9	ι Ceti	2	0·87	0. 12. 39·04	3·054	1		99. 33. 42·14		1	0·95	42·14	19·96
10	ρ Andromedæ	2	0·83	0. 14. 7·36	3·142	2		52. 46. 5·50		2	0·83	5·50	20·00
11	ι Sculptoris	5	0·63	0. 14. 50·04	3·024	5		119. 43. 1·56		5	0·63	1·56	19·91
12	42 Piscium	2	0·72	0. 15. 32·70	3·102	2		77. 15. 23·02		2	0·72	23·02	20·05
13	43 Piscium	2	0·73	0. 17. 45·17	3·099	2		76. 25. 19·09		2	0·73	19·09	20·02
14	Bradley 24	1	0·89	0. 18. 40·27	3·664	2	1	10. 41. 4·57	4·08	3	0·89	4·41	19·96
15	Bradley 27	1	0·72	0. 19. 8·71	3·114	1		70. 35. 24·55		1	0·72	24·55	19·90
16	10 Ceti	1	0·63	0. 19. 48·18	3·075	1		90. 47. 11·17		1	0·63	11·17	19·95
17	47 Piscium	2	0·72	0. 21. 7·08	3·121	2		72. 50. 38·80		2	0·72	38·80	20·08
18	28 Andromedæ	7	0·79	0. 23. 6·62	3·147	7		60. 58. 54·93		7	0·79	54·93	19·88
19	12 Ceti	6	0·74	0. 23. 15·09	3·059	3		94. 41. 33·40		3	0·59	33·40	19·94
20	49 Piscium	2	0·73	0. 23. 52·70	3·108	1		74. 41. 50·37		1	0·72	50·37	19·95
21	B.F. 34	5	0·81	0. 24. 22·24	3·162	5		57. 9. 10·08		5	0·81	10·08	19·94
22	Bradley 41	1	0·72	0. 24. 41·26	3·113	1		74. 42. 44·50		1	0·72	44·50	19·89
23	52 Piscium	3	0·75	0. 25. 37·26	3·137	3		70. 26. 18·66		3	0·75	18·66	19·90
24	13 Ceti	3	0·48	0. 28. 24·19	3·077	3		94. 19. 31·66		3	0·48	31·66	19·86
25	B.F. 40	1	0·71	0. 29. 1·51	3·110	1		77. 31. 10·02		1	0·71	10·02	19·89
26	Piazzi 0. 128	5	0·74	0. 30. 14·28	3·202	5		55. 19. 57·84		5	0·74	57·84	19·84
27	ε Andromedæ	5	0·69	0. 31. 31·95	3·154	1	1	61. 24. 38·88	39·93	2	0·68	39·40	19·62
28	55 Piscium	2	0·72	0. 32. 55·66	3·148	2		69. 17. 31·14		2	0·72	31·14	19·84
29	α Cassiopeiæ	6	0·77	0. 32. 58·52	3·361	6		34. 11. 32·87		6	0·77	32·87	19·81
30	32 Andromedæ	2	0·77	0. 33. 55·07	3·242	2		51. 16. 18·44		2	0·77	18·44	19·85
31	Piazzi 0. 148	5	0·73	0. 34. 32·96	3·193	5		66. 6. 2·38		5	0·73	2·38	19·85
32	β Ceti	4	0·84	0. 36. 54·75	3·012	1		108. 43. 1·59		1	0·89	1·59	19·82
33	21 Cassiopeiæ	9	0·87	0. 36. 55·15	3·815	9		15. 44. 22·06		9	0·87	22·06	19·72
34	23 Cassiopeiæ	3	0·80	0. 38. 56·31	3·867	3		15. 52. 47·09		3	0·80	47·09	19·72
35	59 Piscium	2	0·70	0. 40. 12·09	3·158	2		71. 8. 55·80		2	0·70	55·80	19·78
36	η Cassiopeiæ	3	0·52	0. 41. 4·20	3·572	3		32. 53. 25·50		3	0·52	25·50	19·24
37	δ Piscium	3	0·75	0. 41. 46·98	3·105	3		83. 8. 22·18		3	0·75	22·18	19·67
38	i^1 Piscium	2	0·71	0. 42. 44·83	3·203	2		63. 0. 51·65		2	0·71	51·65	19·74
39	i^2 Piscium	2	0·71	0. 42. 45·20	3·203	2		63. 0. 53·58		2	0·71	53·58	19·74
40	20 Ceti	2	0·70	0. 46. 12·66	3·059	2		91. 52. 0·34		2	0·70	0·34	19·64
41	Piazzi 0. 216	17	0·89	0. 46. 28·65	3·079	16		86. 38. 8·22		16	0·89	8·22	19·55
42	66 Piscium	2	0·71	0. 47. 32·91	3·164	2		71. 31. 59·40		2	0·71	59·40	19·66
43	μ Andromedæ	5	0·84	0. 49. 22·73	3·299	2		52. 13. 21·89		2	0·96	21·89	19·64
44	B.F. 92	5	0·79	0. 50. 5·52	3·215	5		63. 43. 15·05		5	0·79	15·05	19·58
45	h Piscium	1	0·63	0. 50. 38·57	3·229	1		61. 43. 38·72		1	0·63	38·72	19·56
46	Groombridge 215	1	0·88	0. 55. 19·98	4·163	1		16. 20. 34·53		1	0·88	34·53	19·47
47	ε Piscium	16	0·86	0. 56. 2·49	3·111	3		82. 49. 36·35		3	0·31	36·35	19·46
48	Bradley 114	2	0·78	0. 57. 20·02	3·795	2		24. 44. 33·31		2	0·78	33·31	19·43
49	27 Ceti	2	0·34	0. 58. 57·09	3·008	2		100. 41. 30·44		2	0·34	30·44	19·38
50	78 Piscium	4	0·58	1. 0. 40·11	+ 3·304	4		58. 41. 54·11		4	0·58	54·11	— 19·35

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No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1867, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N. P. D. D.	Number of Obs. of N. P. D. R.	Mean N. P. D. 1867, Jan. 1. D.	Mean N. P. D. 1867, Jan. 1. R.	Whole Number of Obs. of N. P. D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N. P. D.	Annual Variation in N. P. D.
				h m s	s			° ′ ″	″			″	″
51	ψ^2 Piscium.....	1	0·75	1. 0. 49·25	+ 3·208	1		69. 58. 8·07		1	0·75	8·07	— 19·25
52	Bradley 117.....	2	0·84	1. 0. 53·71	4·905	2		11. 2. 7·97		2	0·84	7·97	19·32
53	29 Ceti.....	1	0·65	1. 1. 8·19	3·090	1		88. 42. 9·82		1	0·65	9·82	18·88
54	31 Cassiopeiæ	3	0·56	1. 1. 41·64	3·963	1		21. 55. 48·24		3	0·60	48·39	19·32
	31 Cassiopeiæ S.P..					2		48·50					
55	η Ceti	1	0·85	1. 1. 53·88	3·020	1		100. 53. 15·67		1	0·85	15·67	19·21
56	β Andromedæ	14	0·65	1. 2. 17·55	3·338	4		55. 5. 7·23		4	0·82	7·23	19·23
57	44 Andromedæ	5	0·84	1. 2. 46·25	3·384	5		48. 37. 35·81		5	0·84	35·81	19·27
58	32 Cassiopeiæ	3	0·57	1. 3. 3·35	3·777	1		25. 41. 20·99		3	0·62	21·68	19·29
	32 Cassiopeiæ S.P..					2		22·20					
59	45 Andromedæ	2	0·75	1. 3. 42·46	3·309	2		52. 59. 4·27		2	0·75	4·27	19·34
60	33 Ceti.....	5	0·87	1. 3. 42·96	3·080	5		88. 15. 45·84		5	0·87	45·84	19·26
61	Bradley 137.....	2	0·86	1. 4. 52·01	5·014	2		10. 47. 51·50		2	0·86	51·50	19·29
62	35 Ceti.....	3	0·78	1. 5. 41·48	3·074	3		88. 13. 54·69		3	0·78	54·69	19·09
63	36 Ceti.....	3	0·81	1. 6. 6·02	3·027	3		97. 29. 23·37		3	0·81	23·37	19·27
64	φ Piscium.....	4	0·80	1. 6. 31·94	3·242	4		66. 7. 17·87		4	0·80	17·87	19·24
65	ζ^1 Piscium	4	0·48	1. 6. 47·08	3·127	4		83. 7. 44·24		4	0·48	44·24	19·14
66	ζ^2 Piscium	1	0·93	1. 6. 48·52	3·126	1		83. 7. 34·44		1	0·93	34·44	19·14
67	87 Piscium.....	3	0·75	1. 7. 3·85	3·177	3		74. 34. 17·37		3	0·75	17·37	19·17
68	38 Ceti.....	1	0·84	1. 8. 1·64	3·054	1		91. 41. 8·03		1	0·84	8·03	19·39
69	Polaris	77	0·64	1. 10. 17·34	19·774	44	1	1. 23. 58·72	58·46	87	0·66	58·73	19·12
	Polaris S.P.....					42		58·75					
70	41 Ceti.....	1	0·75	1. 11. 1·39	3·017	1		98. 21. 43·59		1	0·75	43·59	19·19
71	υ Piscium.....	1	0·82	1. 12. 9·73	3·280	1		63. 26. 7·68		1	0·82	7·68	19·12
72	Bradley 166.....	2	0·90	1. 12. 10·12	5·034	2		11. 58. 19·55		2	0·90	19·55	19·07
73	35 Cassio. (1st Star).	2	0·69	1. 12. 1^2·65	3·960	1		26. 1. 34·79		2	0·75	34·65	19·04
	35 Cassio.(1st Star). S.P.					1		34·44					
74	35 Cassio.(2nd Star).	3	0·77	1. 12. 14·11	3·960	2		26. 2. 26·04		3	0·82	26·01	19·04
	35 Cassio.(2nd Star).S.P.					1		25·92					
75	l Piscium.....	2	0·74	1. 13. 46·43	3·101	2		61. 57. 27·26		2	0·74	27·26	18·98
76	ξ Andromedæ	1	0·96	1. 14. 31·11	3·499	1		45. 10. 7·51		1	0·96	7·51	18·99
77	47 Andromedæ	5	0·64	1. 16. 4·61	3·409	5		52. 58. 49·25		5	0·64	49·25	18·98
78	92 Piscium	1	0·03	1. 16. 42·20	3·210	1		72. 52. 32·98		1	0·03	32·98	18·94
79	θ Ceti.....	7	0·77	1. 17. 22·52	2·996			98. 52.....					
80	A Cassiopeiæ.....	6	0·91	1. 21. 22·73	4·347	6		20. 25. 16·27		6	0·91	16·27	18·72
81	97 Piscium.....	2	0·74	1. 22. 42·29	3·227	2		72. 19. 57·86		2	0·74	57·86	18·82
82	μ Piscium	1	0·93	1. 23. 13·06	3·145	1		84. 32. 33·80		1	0·93	33·80	18·57
83	η Piscium	12	0·76	1. 24. 22·17	3·198	1		75. 20. 25·73		1	0·87	25·73	18·71
84	Piazzi I. 104.....	5	0·76	1. 26. 36·37	3·444	5		53. 26. 44·82		5	0·76	44·82	18·69
85	40 Cassiopeiæ	2	0·88	1. 27. 56·75	4·637	2		17. 38. 22·04		2	0·88	22·04	18·55
86	ω Cassiopeiæ	1	0·91	1. 32. 31·67	4·331	2	1	22. 37. 52·20	53·42	3	0·93	52·61	18·43
87	τ Andromedæ	4	0·90	1. 32. 44·36	3·522	7	3	50. 5. 51·62	52·16	10	0·57	51·78	18·35
88	*.....	5	0·84	1. 34. 22·75	3·441	5		55. 25. 36·32		5	0·84	36·32	18·38
89	ν Piscium.....	9	0·84	1. 34. 30·70	3·114	2		85. 11. 11·01		2	0·84	11·01	18·33
90	o Piscium.....	9	0·82	1. 38. 22·33	3·161	9		81. 30. 45·45		9	0·82	45·45	18·25
91	Piazzi I. 170	5	0·85	1. 40. 48·45	3·516	5		52. 42. 38·68		5	0·85	38·68	18·15
92	1 Arietis (1st Star).	4	0·80	1. 42. 47·85	3·311	4		68. 23. 10·81		4	0·80	10·81	18·16
93	1 Arietis (2nd Star).	3	0·77	1. 42. 47·93	3·311	3		68. 23 14·88		3	0·77	14·88	18·16
94	55 Andromedæ	2	0·84	1. 45. 19·24	3·569	2		49. 55. 39·84		2	0·84	39·84	17·92
95	46 Cassiopeiæ	1	0·88	1. 45. 42·56	+ 4·547	3	2	21. 58. 11·91	11·62	5	0·90	11·80	— 17·93

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Mean Right Ascensions and Mean North Polar Distances of Stars

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1867, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1867, Jan. 1. D.	Mean N.P.D. 1867, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
96	β Arietis	9	0·82	1. 47. 17·81	+ 3·296	2		69. 50. 36·34		2	0·52	36·34	— 17·79
97	Bradley 253.....	2	0·91	1. 48. 2·96	3·526	3		53. 22. 33·15		3	0·92	33·15	17·88
98	56 Andromedæ	2	0·91	1. 48. 15·85	3·539	3		53. 24. 7·90		3	0·92	7·90	17·90
99	50 Cassiopeiæ	6	0·91	1. 52. 8·09	4·974	6		18. 13. 27·72		6	0·91	27·72	17·72
100	49 Cassiopeiæ S.P..	1	0·42	1. 52. 53·45	5·501	1		14. 31. 36·51		1	0·42	36·51	17·69
101	51 Cassiopeiæ S.P..	1	0·44	1. 53. 58·57	5·268	1		16. 3. 28·11		1	0·44	28·11	17·59
102	α Piscium.....	2	0·04	1. 55. 10·08	3·104	2		87. 52. 47·42		2	0·04	47·42	17·59
103	ε Trianguli.....	2	0·88	1. 55. 12·17	3·493	2		57. 21. 30·44		2	0·88	30·44	17·57
104	γ^1 Andromedæ.....	2	0·89	1. 55. 44·68	3·650	2		48. 18. 35·98		2	0·89	35·98	17·49
105	γ^2 Andromedæ.....	1	0·91	1. 55. 45·68	3·650	1		48. 18. 31·13		1	0·91	31·13	17·49
106	54 Cassiopeiæ S.P..	3	0·41	1. 57. 42·35	5·039	3		19. 4. 30·51		3	0·41	30·51	17·23
107	κ Arietis.....	4	0·61	1. 59. 7·68	3·345	4		67. 59. 13·65		4	0·61	13·65	17·45
108	Bradley 284.....	2	0·92	1. 59. 10·62	3·386	2		64. 48. 21·33		2	0·92	21·33	17·40
109	11 Arietis.....	1	0·87	1. 59. 17·22	3·381	1		64. 55. 52·73		1	0·87	52·73	17·36
110	α Arietis	8	0·63	1. 59. 40·82	3·366	6	2	67. 10. 4·71	4·78	8	0·73	4·73	17·23
111	58 Andromedæ	3	0·89	2. 0. 28·25	3·597	3		52. 46. 24·39		3	0·89	24·39	17·32
112	5 Trianguli	1	0·08	2. 3. 39·10	3·488	1		59. 6. 7·91		1	0·08	7·91	17·21
113	6 Trianguli	4	0·90	2. 4. 39·65	3·464	4		60. 19. 18·92		4	0·90	18·92	17·11
114	6 Persei	2	0·96	2. 4. 46·45	3·946	2		39. 33. 14·25		2	0·96	14·25	16·96
115	b Andromedæ	4	0·86	2. 4. 53·45	3·733	3		46. 23. 37·72		3	0·87	37·72	17·11
116	ξ^1 Ceti	5	0·44	2. 5. 57·22	3·169	5		81. 46. 41·93		5	0·44	41·93	17·06
117	66 Ceti (1st Star)..	1	0·87	2. 5. 59·02	3·071	1		93. 1. 9·35		1	0·87	9·35	17·06
118	66 Ceti (2d Star) ..	3	0·86	2. 5. 59·86	3·071	3		93. 1. 0·08		3	0·86	0·08	17·06
119	7 Trianguli	2	0·92	2. 8. 4·76	3·528	2		57. 15. 39·24		2	0·92	39·24	16·99
120	8 Persei.....	3	0·66	2. 8. 36·39	4·188	3		32. 43. 8·94		3	0·66	8·94	16·96
121	γ Trianguli	2	0·88	2. 9. 24·88	3·549	2		56. 46. 9·46		2	0·88	9·46	16·92
122	67 Ceti.....	3	0·55	2. 10. 20·96	2·986			97. 2.		3	0·33	7·86	16·84
123	Bradley 325.....	3	0·33	2. 12. 5·81	3·853	3		43. 18. 7·86		1	0·07	36·94	16·76
124	63 Andromedæ	1	0·07	2. 12. 10·68	3·930	1		40. 27. 36·94		5	0·88	32·90	16·61
125	Piazzi II. 61	5	0·88	2. 14. 34·31	3·714	5		49. 12. 32·90					
126	64 Andromedæ	1	0·91	2. 15. 35·53	3·944	1		40. 35. 54·81		1	0·91	54·81	16·60
127	Lalande 4458.....	3	0·93	2. 17. 27·30	2·678	3		117. 35. 58·21		3	0·93	58·21	16·55
128	66 Andromedæ	2	0·08	2. 18. 57·31	3·981	2		40. 1. 37·16		2	0·08	37·16	16·38
129	11 Trianguli	2	0·02	2. 19. 35·50	3·528	2		58. 47. 50·98		2	0·02	50·98	16·43
130	12 Trianguli	1	0·91	2. 20. 22·58	3·495	1		60. 55. 34·50		1	0·91	34·50	16·32
131	ξ^2 Ceti	8	0·75	2. 21. 5·39	3·180	4		82. 8. 14·65		4	0·83	14·65	16·35
132	14 Trianguli	2	0·87	2. 23. 59·64	3·636	2		54. 26. 40·77		2	0·87	40·77	16·22
133	15 Trianguli	3	0·60	2. 27. 43·00	3·622	3		55. 53. 41·01		3	0·60	41·01	15·99
134	Piazzi II. 117	2	0·47	2. 27. 46·47	3·622	2		55. 51. 29·92		2	0·47	29·92	15·99
135	ν Ceti	3	0·32	2. 28. 53·74	3·135	2		84. 59. 19·55		2	0·48	19·55	15·94
136	Bradley 353.....	1	0·91	2. 29. 37·10	5·426	1		18. 56. 57·17		1	0·91	57·17	15·86
137	ν Arietis.....	1	0·88	2. 31. 16·01	3·391	1		68. 36. 55·08		1	0·88	55·08	15·82
138	δ Ceti	2	0·48	2. 32. 40·06	3·072			90. 15.		1	0·00	49·78	15·69
139	11 Persei	1	0·01	2. 33. 32·80	4·244	1		35. 27. 49·78		2	0·86	14·33	15·52
140	12 Persei	2	0·86	2. 33. 51·87	3·759	2		50. 22. 14·33					
141	14 Persei	1	0·08	2. 35. 26·12	3·874	1		46. 16. 14·25		1	0·08	14·25	15·59
142	γ^2 Ceti	4	0·90	2. 36. 24·63	3·101	1		87. 19. 34·15		1	0·91	34·15	15·38
143	μ Ceti	3	0·51	2. 37. 45·31	3·232	3		80. 26. 56·88		3	0·51	56·88	15·42
144	16 Persei	2	0·86	2. 42. 11·82	3·762	2		52. 13. 52·19		2	0·86	52·19	15·17
145	σ Arietis.....	3	0·51	2. 44. 9·16	+ 3·297	1		75. 28. 5·25		1	0·63	5·25	— 15·08

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No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1867, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1867, Jan. 1. D.	Mean N.P.D. 1867, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s.			° ′ ″	″			″	″
146	ρ^2 Arietis	1	0·86	2. 48. 20·29	+ 3·361	1		72. 12. 32·46		1	0·86	32·46	— 14·89
147	47 Cephei	2	0·08	2. 48. 32·49	7·635	5	1	11. 6. 41·78	41·61	6	0·19	41·75	14·89
148	21 Persei	5	0·88	2. 49. 13·39	3·625	5		58. 36. 12·39		5	0·88	12·39	14·85
149	Bradley 396.....	1	0·08	2. 51. 18·27	8·732	2		9. 2. 58·21		2	0·04	58·21	14·73
150	α Ceti	4	0·87	2. 55. 19·73	3·127	3		86. 26. 1·84		3	0·89	1·84	14·36
151	β Persei	2	0·04	2. 59. 31·39	3·874	2		49. 33. 32·70		2	0·04	32·70	14·22
152	ω Persei	2	0·87	3. 2. 42·82	3·851	2		50. 53. 45·53		2	0·87	45·53	14·03
153	Bradley 431.....	1	0·91	3. 3. 33·55	7·287	2		12. 45. 30·50		2	0·46	30·50	13·88
154	δ Arietis.....	6	0·49	3. 4. 1·65	3·418	2		70. 46. 43·42		2	0·06	43·42	13·93
155	Piazzi III. 5	5	0·88	3. 6. 7·76	3·957	5		47. 59. 43·64		5	0·88	43·64	13·82
156	Bradley 448.....			3. 8. (24.)		1	1	24. 50. 14·72	15·68	2	0·08	15·20	13·62
157	Groombridge 639 ..	4	0·89	3. 9. 9·05	3·862	4		51. 12. 28·50		4	0·89	28·50	13·60
158	Piazzi III. 23	5	0·91	3. 10. 25·13	3·742	5		56. 15. 58·52		5	0·91	58·52	13·45
159	l Persei	2	0·02	3. 12. 32·56	3·992	2		47. 9. 12·99		2	0·02	12·99	13·37
160	τ^1 Arietis.....	5	0·57	3. 13. 33·13	3·448			69. 20.					
161	α Persei	1	0·34	3. 14. 50·45	4·247	1		40. 36. 54·83		1	0·34	54·83	13·18
162	τ^3 Arietis.....	2	0·86	3. 15. 6·28	3·442	2		69. 44. 9·24		2	0·86	9·24	13·21
163	o Tauri.....	9	0·60	3. 17. 39·48	3·225	2		81. 26. 27·85		2	0·75	27·85	13·12
164	Piazzi III. 51	1	0·00	3. 18. 19·18	4·803	1		30. 31 33·65		1	0·00	33·65	13·09
165	σ Persei	3	0·61	3. 21. 12·57	4·203	3		42. 28. 0·25		3	0·61	0·25	13·82
166	Bradley 483.....	2	0·47	3. 22. 45·47	4·204	1		42. 25. 58·65		1	0·87	58·65	12·71
167	s Tauri.....	2	0·87	3. 23. 8·48	3·271	2		79. 7. 18·88		2	0·87	18·88	12·63
168	36 Persei	2	0·03	3. 23. 14·06	4·127	2		44. 23. 48·15		2	0·03	48·15	12·59
169	f Tauri.....	7	0·63	3. 23. 31·96	3·304	4		77. 31. 16·18		4	0·62	16·18	12·62
170	ϵ Eridani	1	0·10	3. 26. 39·89	2·822			99. 55.					
171	9 Tauri	1	0·86	3. 29. 9·06	3·511	1		67. 13. 52·43		1	0·86	52·43	12·22
172	Piazzi III. 94	2	0·03	3. 30. 38·49	5·134	2		27. 13. 4·41		2	0·03	4·41	12·25
173	Piazzi III. 104	3	0·91	3. 32. 28·81	3·907	3		52. 51. 6·71		3	0·91	6·71	12·11
174	11 Tauri	2	0·86	3. 32. 49·82	3·567			65. 6.					
175	δ Persei	3	0·33	3. 33. 27·96	4·242	3		42. 38. 26·45		3	0·33	26·45	11·94
176	o Persei	2	0·88	3. 33. 57·16	3·785	2		56. 27. 51·45		2	0·88	51·45	11·93
177	ϕ Persei	1	0·07	3. 35. 59·01	3·739	1	1	58. 8. 1·85	0·84	2	0·08	1·35	11·82
178	ν Persei	1	0·92	3. 36. 10·08	4·046	1		47. 50. 40·26		1	0·92	40·26	11·75
179	Piazzi III. 138	1	0·08	3. 37. 12·68	2·866	1		100. 54. 32·13		1	0·08	32·13	11·65
180	η Tauri.....	8	0·84	3. 39. 34·89	3·552	2		66. 18. 31·30		2	0·68	31·30	11·47
181	e Tauri.....	1	0·71	3. 40. 58·81	3·281	1		79. 16. 5·98		1	0·71	5·98	11·39
182	n Persei	4	0·46	3. 41. 8·55	3·779	4		57. 19. 8·91		4	0·46	8·91	11·41
183	ζ Persei	3	0·08	3. 45. 46·64	3·759	3		58. 30. 50·99		3	0·08	50·99	11·06
184	Piazzi III. 178	1	0·92	3. 45. 48·97	5·051	1		29. 17. 4·56		1	0·92	4·56	11·14
185	A Persei	1	0·00	3. 46. 43·60	4·430	1		39. 41. 33·83		1	0·00	33·83	10·86
186	32 Tauri	1	0·87	3. 49. 0·67	3·535	1		67. 54. 26·83		1	0·87	26·83	10·70
187	ξ Persei	1	0·88	3. 50. 20·44	3·874	1		54. 35. 38·09		1	0·88	38·09	10·71
188	γ^1 Eridani	2	0·06	3. 51. 49·46	2·795			103. 53.					
189	λ Tauri	2	0·38	3. 53. 18·89	3·315	2		77. 53. 16·11		2	0·38	16·11	10·51
190	Groombridge 750 ..			3. 55. (44.)	16·765	1		4. 48. 2·72		2	0·29	3·05	10·40
	Groombridge750S.P.					1		3·39					
191	A^2 Tauri	2	0·90	3. 57. 28·00	3·538	2		68. 21. 9·20		2	0·90	9·20	10·08
192	Piazzi III. 237	1	0·87	3. 57. 29·07	3·538	1		68. 18. 22·97		1	0·87	22·97	10·08
193	ψ Tauri	2	0·91	3. 58. 47·39	+ 3·703	2		61. 21. 40·79		2	0·91	40·79	— 10·14

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No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1867, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N. P. D. D.	Number of Obs. of N. P. D. R.	Mean N. P. D. 1867, Jan. 1. D.	Mean N. P. D. 1867, Jan. 1. R.	Whole Number of Obs. of N. P. D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N. P. D.	Annual Variation in N. P. D.
				h m s	s			° ′ ″	″			″	″
291	28 Aurigæ	3	0·94	5. 39. 36·90	+ 4·172	3		50. 30. 59·56		3	0·94	59·56	— 1·85
292	τ Aurigæ	3	0·95	5. 39. 57·67	4·156	3		50. 52. 4·86		3	0·95	4·86	1·69
293	133 Tauri.....	1	0·14	5. 40. 10·39	3·406	1		76. 9. 6·51		1	0·14	6·51	1·72
294	30 Camelopardali...	2	0·41	5. 40. 33·89	5·285	2		31. 4. 44·85		2	0·41	44·85	1·74
295	52 Orionis	1	0·17	5. 40. 51·57	3·228	1		83. 35. 43·38		1	0·17	43·38	1·61
296	υ Aurigæ	3	0·94	5. 41. 58·20	4·089	3		52. 44. 10·90		3	0·94	10·90	1·61
297	134 Tauri	3	0·10	5. 42. 4·69	3·374	3		77. 23. 37·98		3	0·10	37·98	1·58
298	135 Tauri.....	1	0·92	5. 42. 55·06	3·410	1		75. 44. 9·75		1	0·92	9·75	1·47
299	Piazzi V. 243	1	0·97	5. 43. 51·97	3·971	1		56. 7. 14·54		1	0·97	14·54	1·36
300	χ^1 Orionis.....	1	0·12	5. 46. 30·40	3·548	1		69. 45. 5·83		1	0·12	5·83	1·08
301	χ^2 Orionis.....	1	0·97	5. 47. 4·31	3·555	1		70. 16. 45·30		1	0·97	45·30	1·14
302	α Orionis	8	0·42	5. 47. 58·31	3·246	6		82. 37. 12·99		6	0·58	12·99	1·05
303	β Aurigæ	3	0·56	5. 49. 46·36	4·405	2		45. 4. 12·64		2	0·52	12·64	0·86
	β Aurigæ S.P.					1		12·14					
304	36 Aurigæ	2	0·57	5. 50. 53·22	4·551	2		42. 6. 38·19		2	0·57	38·19	0·74
305	1 Monocerotis	1	0·09	5. 52. 41·57	2·854	1		99. 23. 45·69		1	0·09	45·69	0·63
306	Bradley 865.....	2	0·89	5. 53. 16·80	4·341	2		46. 37. 35·92		2	0·89	35·92	0·59
307	38 Aurigæ	3	0·43	5. 53. 42·65	4·328	3		47. 5. 16·51		3	0·43	16·51	0·40
308	39 Aurigæ	3	0·41	5. 55. 29·55	4·320	3		47. 0. 44·06		3	0·41	44·06	0·32
309	3 Monocerotis	1	0·17	5. 55. 35·09	2·821	1		100. 36. 7·43		1	0·17	7·43	0·38
310	1 Geminorum.....	2	0·16	5. 56. 2·19	3·645			66. 44.					
311	40 Aurigæ	1	0·16	5. 57. 25·12	4·136	1		51. 30. 33·23		1	0·16	33·23	0·22
312	Bradley 889.....	1	0·17	5. 59. 10·37	2·828	1		100. 14. 9·94		1	0·17	9·94	— 0·03
313	ν Orionis	2	0·46	5. 59. 58·71	3·426	2		75. 13. 5·95		2	0·46	5·95	+ 0·02
314	19 Leporis.....	1	0·17	6. 1. 54·62	2·611	1		109. 9. 7·94		1	0·17	7·94	0·09
315	4 Geminorum	3	0·69	6. 2. 25·93	3·644	3		66. 58. 52·18		3	0·69	52·18	0·21
316	6 Geminorum	2	0·16	6. 4. 15·38	3·640	2		67. 3. 52·74		2	0·16	52·74	0·39
317	f^1 Orionis	3	0·14	6. 4. 23·11	3·462	2		73. 50. 32·23		2	0·16	32·23	0·36
318	Bradley 904(1st Star)	1	0·95	6. 6. 40·58	4·047	1		53. 49. 5·06		1	0·95	5·06	0·64
319	Bradley 904 (2d Star)	1	0·95	6. 6. 41·23	4·047	1		53. 48. 55·75		1	0·95	55·75	0·64
320	η Geminorum.....	6	0·52	6. 6. 50·94	3·620	2		67. 27. 28·20		2	0·07	28·20	0·62
321	42 Aurigæ	2	0·88	6. 7. 39·87	4·475	2		43. 32. 8·79		2	0·88	8·79	0·70
322	43 Aurigæ	2	0·88	6. 8. 21·80	4·478	2		43. 35. 30·23		2	0·88	30·23	0·84
323	Bradley 912	1	0·16	6. 8. 39·32	4·002	1		54. 48. 35·36		1	0·16	35·36	0·74
324	9 Geminorum	1	0·14	6. 8. 52·04	3·663	1		66. 13. 2·48		1	0·14	2·48	0·76
325	Bradley 918	2	0·56	6. 9. 59·79	4·010	2		54. 44. 38·02		2	0·56	38·02	0·96
326	μ Geminorum	7	0·49	6. 14. 54·85	3·632	7		67. 25. 15·89		7	0·55	15·89	1·43
327	β Canis Majoris....	2	0·49	6. 16. 50·61	2·643			107. 53.					
328	14 Geminorum	2	0·11	6. 17. 43·78	3·605	2		68. 17. 4·08		2	0·11	4·08	1·56
329	Bradley 937.....	3	0·91	6. 19. 38·59	3·977	3		55. 25. 46·65		3	0·91	46·65	1·72
330	78 Orionis	1	0·01	6. 20. 27·56	3·077	1		90. 11. 53·82		1	0·01	53·82	1·87
331	10 Monocerotis	2	0·55	6. 21. 23·47	2·969	1		94. 40. 57·30		1	0·18	57·30	1·92
332	Piazzi VI. 136	1	0·17	6. 23. 14·43	2·226	1		122. 29. 50·33		1	0·17	50·33	1·95
333	Piazzi VI. 126	1	0·93	6. 23. 46·32	3·926	1		57. 27. 15·08		1	0·93	15·08	2·06
334	ξ^1 Canis Majoris ...	1	0·05	6. 26. 18·84	2·503	1		113. 19. 31·36		1	0·05	31·36	2·29
335	Groombridge 1190 .	1	0·93	6. 27. 24·10	4·130	1		51. 27. 3·80		1	0·93	3·80	2·39
336	23 Geminorum	1	0·08	6. 28. 19·95	3·479	1		73. 5. 54·58		1	0·08	54·58	2·45
337	51 Aurigæ	1	0·14	6. 29. 26·53	4·164	1		50. 29. 44·01		1	0·14	44·01	2·68
338	ξ^2 Canis Majoris ...	1	0·17	6. 29. 28·94	+ 2·521	1		112. 51. 42·16		1	0·17	42·16	+ 2·51

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				h m s	s			° ′ ″	″			″	″
339	52 Aurigæ	1	0·80	6. 29. 33·40	+ 4·181	1		49. 59. 10·85		1	0·80	10·85	+ 2·63
340	50 Aurigæ	1	0·94	6. 29. 49·71	4·294	1		47. 23. 52·94		1	0·94	52·94	2·65
341	53 Aurigæ	1	0·15	6. 29. 56·89	3·810	1		60. 54. 17·28		1	0·15	17·28	2·65
342	γ Geminorum	7	0·45	6. 30. 1·63	3·466	5		73. 29. 24·82		5	0·45	24·82	2·56
343	54 Aurigæ	2	0·53	6. 31. 9·89	3·787	2	1	61. 37. 21·99	21·85	3	0·68	21·94	2·76
344	25 Geminorum	3	0·34	6. 32. 57·87	3·787	3		61. 41. 1·78		3	0·34	1·78	2·89
345	26 Geminorum	2	0·53	6. 34. 39·58	3·495	2		72. 13. 39·02		2	0·53	39·02	3·10
346	ε Geminorum.....	1	0·12	6. 35. 44·88	3·696	1		64. 44. 25·11		1	0·12	25·11	3·13
347	30 Geminorum	1	0·03	6. 36. 29·24	3·392	1		76. 38. 28·37		1	0·03	28·37	3·20
348	56 Aurigæ	2	0·93	6. 37. 8·98	4·336	2		46. 17. 38·20		2	0·93	38·20	3·10
349	Cephei 51			6. 37. (10.)	30·311	2	1	2. 45. 29·03	28·56	11	0·83	28·62	3·34
	Cephei 51 S.P.....					8		28·53					
350	ξ Geminorum.....	1	0·87	6. 37. 49·36	3·371	1		76. 57. 50·35		1	0·87	50·35	3·52
351	Sirius.....	6	0·47	6. 39. 17·10	2·645	7		106. 32. 9·50		7	0·43	9·50	4·65
352	16 Monocerotis	2	0·04	6. 39. 17·11	3·276	2		81. 16. 28·90		2	0·04	28·90	3·40
353	11 Canis Majoris...	2	0·10	6. 40. 47·08	2·738	2		104. 17. 8·23		2	0·10	8·23	3·54
354	12 Canis Majoris...	1	0·15	6. 41. 19·63	2·573	1		110. 52. 24·76		1	0·15	24·76	3·62
355	59 Aurigæ	1	0·92	6. 43. 52·37	4·147	1		50. 58. 32·04		1	0·92	32·04	3·84
356	61 Aurigæ	1	0·92	6. 44. 50·02	4·131	1		51. 20. 8·41		1	0·92	8·41	3·91
357	15 Lyncis.....	5	0·14	6. 45. 45·19	5·223	5		31. 24. 26·64		5	0·14	26·64	4·16
358	θ Canis Majoris	9	0·47	6. 48. 0·64	2·787			101. 52.					
359	39 Geminorum	2	0·08	6. 50. 35·51	3·706	2		63. 44. 49·58		2	0·08	49·58	4·29
360	ζ Geminorum.....	3	0·57	6. 56. 13·15	3·564	4	1	69. 14. 15·16	16·52	5	0·34	15·43	4·88
361	γ Canis Majoris....	1	0·16	6. 57. 44·42	2·716			105. 26.					
362	63 Aurigæ	2	0·17	7. 2. 30·18	4·140	2		50. 27. 57·41		2	0·17	57·41	5·40
363	Piazzi VI. 292.....			7. 2. (56.)		1	1	7. 20. 33·40	35·14	2	0·14	34·27	5·44
364	δ Canis Majoris	1	0·03	7. 2. 59·00	2·439	1		116. 11. 4·35		1	0·03	4·35	5·43
365	47 Geminorum.....	4	0·09	7. 3. 8·04	3·464	4		62. 55. 40·87		4	0·09	40·87	5·48
366	51 Geminorum	1	0·17	7. 5. 44·01	3·452			73. 37.					
367	Bradley 1048.....	1	0·03	7. 6. 19·50	3·649	1		65. 3. 52·96		1	0·03	52·96	5·72
368	52 Geminorum	2	0·09	7. 6. 33·82	3·679	2		64. 53. 13·71		2	0·09	13·71	5·90
369	26 Canis Majoris...	1	0·95	7. 6. 45·67	2·457	1		115. 43. 18·66		1	0·95	18·66	5·78
370	Bradley 1061	2	0·09	7. 9. 28·73	2·434	2		116. 48. 26·72		2	0·09	26·72	5·99
371	Bradley 1054.....	1	0·17	7. 11. 59·04	4·924	1		34. 28. 8·14		1	0·17	8·14	6·24
372	19 Lyncis.....	1	0·17	7. 12. 0·39	4·921	1		34. 28. 18·82		1	0·17	18·82	6·25
373	δ Geminorum.....	9	0·30	7. 12. 10·68	3·592	5	2	67. 46. 32·22	33·00	7	0·24	32·44	6·23
374	29 Canis Majoris...	1	0·08	7. 13. 8·00	2·499	1		114. 19. 1·98		1	0·08	1·98	6·29
375	65 Aurigæ	2	0·13	7. 13. 9·21	4·026	2		52. 59. 33·02		2	0·13	33·02	6·29
376	30 Canis Majoris...	1	0·12	7. 13. 11·48	2·490	1		114. 42. 49·56		1	0·12	49·56	6·30
377	56 Geminorum	1	0·20	7. 14. 5·94	3·553	1		69. 18. 28·65		1	0·20	28·65	6·37
378	A Geminorum	4	0·07	7. 15. 21·93	3·670	4		64. 41. 48·44		4	0·07	48·44	6·50
379	58 Geminorum	1	0·17	7. 15. 28·48	3·614	1		66. 48. 5·38		1	0·17	5·38	6·54
380	21 Lyncis.....	1	0·95	7. 16. 40·40	4·554	1		40. 31. 42·17		1	0·95	42·17	6·68
381	61 Geminorum	1	0·20	7. 19. 5·94	3·547	1		69. 28. 47·05		1	0·20	47·05	6·80
382	Groombridge 1119 .	1	0·72	7. 19. 7·77	75·924			0. 58.					
383	β Canis Minoris ...	1	0·14	7. 19. 56·23	3·257			81. 26.					
384	ρ Geminorum	1	0·12	7. 20. 33·16	3·864	1		57. 57. 14·20		1	0·12	14·20	6·71
385	Lalande 14524.....	1	0·08	7. 21. 23·91	+ 3·264	1		81. 13. 28·10		1	0·08	28·10	+ 6·97

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				h m s	s			° ′ ″	″			″	″
386	68 Geminorum	1	0·95	7. 26. 0·97	+ 3·428	1		73. 53. 24·37		1	0·95	24·37	+ 7·35
387	Castor	2	0·38	7. 26. 6·54	3·842	1		57. 49. 23·04		1	0·67	23·04	7·44
388	δ^2 Canis Minoris ...	1	0·09	7. 26. 13·31	3·154	1		86. 25. 42·70		1	0·09	42·70	7·35
389	Bradley 1090.....	2	0·21	7. 26. 41·49	3·826	2		58. 45. 12·02		2	0·21	12·02	7·40
390	δ^3 Canis Minoris ...	2	0·10	7. 27. 17·13	3·151	2		86. 20. 32·44		2	0·10	32·44	7·46
391	υ Geminorum	1	0·05	7. 27. 43·56	3·708	2	1	62. 48. 42·32	42·87	3	0·13	42·50	7·60
392	70 Geminorum	2	0·16	7. 29. 48·81	3·957	2		54. 39. 24·58		2	0·16	24·58	7·69
393	o Geminorum	2	0·92	7. 30. 28·78	3·932	2		55. 6. 49·06		2	0·92	49·06	8·01
394	Piazzi VII. 161....	1	0·01	7. 31. 9·55	3·630	1		65. 28. 44·15		1	0·01	44·15	7·84
395	Bradley 1105.....	1	0·24	7. 31. 24·26	3·188	1		84. 37. 38·42		1	0·24	38·42	7·70
396	f Geminorum.....	1	0·20	7. 31. 47·60	3·470	1		72. 1. 32·56		1	0·20	32·56	7·81
397	Procyon	15	0·41	7. 32. 20·28	3·145	9		84. 26. 12·00		9	0·49	12·00	8·90
398	Bradley 1107.....	2	0·20	7. 33. 3·08	3·189	3		84. 27. 55·19		3	0·16	55·19	7·93
399	Bradley 1104.....	2	0·92	7. 33. 59·17	4·575	2		39. 15. 19·15		2	0·92	19·15	8·03
400	c Geminorum	1	0·03	7. 35. 59·85	3·669	1		63. 54. 8·20		1	0·03	8·20	8·19
401	κ Geminorum	2	0·11	7. 36. 24·87	3·629	2		65. 17. 10·06		2	0·11	10·06	8·24
402	Pollux	8	0·40	7. 37. 10·40	3·682	5		61. 39. 18·64		5	0·54	18·64	8·31
403	11 Canis Minoris .	2	0·15	7. 38. 56·84	3·311	2		78. 54. 37·06		2	0·15	37·06	8·38
404	2 Puppis (1st Star).	1	0·22	7. 39. 21·74	2·762	1		104. 21. 54·52		1	0·22	54·52	8·43
405	2 Puppis (2d Star).	2	0·20	7. 39. 22·17	2·762	2		104. 22. 10·43		2	0·20	10·43	8·43
406	4 Puppis	2	0·14	7. 39. 49·47	2·767	2		104. 14. 31·93		2	0·14	31·93	8·47
407	5 Puppis	1	0·16	7. 41. 42·95	2·814	1		101. 52. 5·51		1	0·16	5·51	8·60
408	6 Puppis	2	0·17	7. 43. 40·77	2·715	2		106. 53. 30·02		2	0·17	30·02	8·89
409	Groombridge 1374 .			7. 44. (13.)		1	1	15. 43. 58·51	57·64	2	0·08	58·07	8·81
410	ζ Canis Minoris....	2	0·18	7. 44. 48·06	3·117	2		87. 53. 44·50		2	0·18	44·50	8·87
411	8 Puppis	1	0·22	7. 45. 27·84	2·088	1		102. 28. 52·13		1	0·22	52·13	8·90
412	10 Puppis	2	0·24	7. 46. 11·67	2·765	2		104. 30. 23·27		2	0·24	23·27	9·01
413	85 Geminorum	1	0·09	7. 47. 53·99	3·512	1		69. 46. 3·47		1	0·09	3·47	9·14
414	12 Puppis	1	0·24	7. 53. 23·57	2·575	1		112. 57. 2·61		1	0·24	2·61	9·48
415	28 Monocerotis	3	0·12	7. 54. 27·31	3·058	3		91. 1. 31·76		3	0·12	31·76	9·71
416	6 Cancri.....	1	0·01	7. 55. 20·80	3·695	1	1	61. 50. 8·33	9·21	2	0·08	8·77	9·74
417	7 Cancri.....	2	0·23	7. 55. 59·20	3·553	2		67. 33. 32·32		2	0·23	32·32	9·68
418	B. F. 1128.....	1	0·20	7. 57. 3·99	3·479	1		70. 47. 3·60		1	0·20	3·60	9·80
419	14 Puppis	2	0·17	7. 58. 47·22	2·668	2		109. 21. 10·81		2	0·17	10·81	9·89
420	15 Argûs	2	0·15	8. 1. 52·83	2·555			113. 56. . ..					
421	ψ^1 Cancri	3	0·19	8. 2. 10·62	3·640	3		63. 46. 1·73		3	0·19	1·73	10·22
422	Bradley 1147 S.P. .	2	0·56	8. 2. 44·58	7·762	2		13. 50. 33·06		2	0·56	33·06	10·23
423	18 Puppis	2	0·23	8. 4. 30·04	2·785	2		103. 24. 35·77		2	0·23	35·77	10·26
424	56 Camelopar. S.P..	3	0·57	8. 4. 36·21	5·115	4		29. 13. 16·46		4	0·57	16·46	10·37
425	19 Puppis	1	0·09	8. 5. 1·85	2·818	1		102. 32. 3·17		1	0·09	3·17	10·40
426	Bradley 1169 S.P .	1	0·56	8. 5. 56·60	5·018	1		30. 24. 29·82		1	0·56	29·82	10·48
427	Bradley 1160 S.P. .	2	0·58	8. 5. 57·05	6·761	3		17. 11. 5·72		3	0·58	5·72	10·47
428	β Cancri.....	4	0·16	8. 9. 18·07	3·259	1		80. 24. 24·59		1	0·16	24·59	10·77
429	d^1 Cancri.....	5	0·33	8. 15. 44·73	3·444			71. 14.					
430	22 Puppis	1	0·10	8. 16. 31·92	2·824	1		102. 37. 45·48		1	0·10	45·48	11·24
431	Piazzi VIII. 46....	1	0·28	8. 17. 11·19	5·773	2	1	22. 16. 8·35	8·50	3	0·21	8·40	11·26
432	Bradley 1188.....	1	0·16	8. 17. 11·28	3·430	1		72. 23. 9·82		1	0·16	9·82	11·45
433	ϕ^1 Cancri	1	0·09	8. 18. 22·14	3·665	1		61. 40. 15·69		1	0·09	15·69	11·49
434	o Ursæ Majoris	1	0·34	8. 19. 11·40	+ 5·046	1		28. 50. 26·48		1	0·34	26·48	11·57
435	A Ursæ Majoris ...			8. 22. (39.)		1	1	24. 24. 19·09	19·17	2	0·22	19·13	+ 11·77

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No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1867, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1867, Jan. 1. D.	Mean N.P.D. 1867, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
436	υ^3 Cancri	1	0·28	8. 23. 38·45	+ 3·558	1		65. 28. 22·50		1	0·28	22·50	+ 11·83
437	η Cancri.....	5	0·20	8. 25. 0·86	3·479	1		69. 6. 33·39		1	0·20	33·39	11·92
438	3 Ursæ Majoris....	2	0·63	8. 27. 21·21	5·414	2		24. 31. 22·84		2	0·63	22·84	11·98
439	34 Lyncis.....	1	0·97	8. 31. 49·00	4·177	1		43. 42. 6·78		1	0·97	6·78	12·27
440	Bradley 1219.....	2	0·20	8. 32. 3·17	3·744	2		57. 35. 25·54		2	0·20	25·54	12·36
441	42 Cancri.	1	0·27	8. 33. 4·84	3·465	1		69. 48. 43·46		1	0·27	43·46	12·47
442	Bradley 1228.....	1	0·10	8. 34. 11·52	3·459	1		69. 39. 14·81		1	0·10	14·81	12·58
443	γ Cancri.....	5	0·35	8. 35. 35·12	3·480	2	2	68. 3. 19·26	19·41	4	0·23	19·34	12·57
444	Grombridge 1463 ..			8. 35. (49.)		1	1	9. 28. 44·16	44·31	2	0·03	44·24	12·61
445	δ Cancri.....	2	0·50	8. 37. 7·43	3·419	2		71. 21. 31·42		2	0·50	31·42	12·94
446	σ^1 Cancri	3	0·21	8. 37. 11·48	3·700	3		58. 49. 23·43		3	0·21	23·43	12·68
447	ι Cancri	1	0·27	8. 38. 38·52	3·647	1		60. 45. 21·00		1	0·27	21·00	12·85
448	ϵ Hydræ.....	4	0·29	8. 39. 43·86	3·184			83. 6.					
449	b Ursæ Majoris....	3	0·20	8. 42. 23·38	5·019	3		27. 32. 35·86		3	0·20	35·86	12·88
450	51 Cancri.....	2	0·27	8. 44. 21·20	3·734	2		57. 1. 47·44		2	0·27	47·44	13·16
451	ρ^1 Cancri	3	0·19	8. 44. 28·49	3·614	3		61. 14. 38·04		3	0·19	38·04	13·21
452	6 Ursæ Majoris....	1	0·25	8. 45. 11·24	5·234	1		24. 53. 25·78		1	0·25	25·78	13·37
453	σ^2 Cancri	1	0·27	8. 46. 7·48	3·680	1		58. 55. 10·01		1	0·27	10·01	13·30
454	59 Cancri.....	2	0·30	8. 48. 43·80	3·725	2		56. 34. 49·42		2	0·30	49·42	13·54
455	ι Ursæ Majoris	3	0·67	8. 50. 5·26	4·142	1		41. 26. 19·54		1	0·42	19·54	13·83
	ι Ursæ Majoris S.P.					4		20·70					
456	ρ Ursæ Majoris	1	0·23	8. 50. 30·52	5·533	2	1	21. 51. 18·92	22·01	3	0·24	19·95	13·59
457	α Cancri.....	5	0·21	8. 51. 12·67	3·287	1		77. 37. 45·82		1	0·28	45·82	13·67
458	64 Cancri..... .	2	0·19	8. 51. 22·24	3·707	2		57. 4. 0·11		2	0·19	0·11	13·70
459	66 Cancri.....	1	0·28	8. 53. 14·42	3·696	1		57. 13. 49·25		1	0·28	49·25	13·75
460	σ^2 Ursæ Majoris ...	3	0·21	8. 58. 38·98	5·384	3		22. 19. 42·78		3	0·21	42·78	14·21
461	τ Cancri.....	1	0·31	9. 0. 0·64	3·626	1		59. 48. 46·98		1	0·31	46·98	14·23
462	κ Cancri.....	4	0·25	9. 0. 32·46	3·257	1		78. 47. 55·36		1	0·28	55·36	14·21
463	75 Cancri.....	1	0·26	9. 0. 57·53	3·546	1		62. 49. 21·97		1	0·26	21·97	14·64
464	e Mali.....	2	0·24	9. 4. 18·26	2·542	2		119. 49. 26·28		2	0·24	26·28	14·55
465	Bradley 1300.....	2	0·27	9. 7. 3·98	3·709	2		54. 49. 11·55		2	0·27	11·55	14·58
466	20 Ursæ Majoris...	1	0·23	9. 10. 17·17	4·670	1		29. 39. 38·91		1	0·23	38·91	14·95
467	Bradley 1306.....	2	0·23	9. 11. 28·88	4·215	2		38. 10. 49·17		2	0·23	49·17	14·77
468	83 Cancri.....	4	0·24	9. 11. 33·28	3·356	1		71. 43. 59·39		1	0·23	59·39	15·04
469	α Lyncis.....	6	0·25	9. 12. 56·72	3·679	6		55. 2. 49·41		6	0·25	49·41	14·98
470	21 Ur. Maj. (2d Star)	2	0·23	9. 16. 11·40	4·310	2		35. 24. 50·89		2	0·23	50·89	15·21
471	Piazzi IX. 37.....	2	0·26	9. 17. 52·76	9·133	2		8. 5. 25·07		2	0·26	25·07	15·28
472	h Ursæ Majoris....	1	0·23	9. 21. 0·60	4·809	2	1	26. 21. 32·90	32·98	3	0·26	32·93	15·31
473	α Hydræ	2	0·19	9. 21. 3·08	2·949			98. 5.					
474	d Ursæ Majoris....	1	0·23	9. 22. 39·97	5·444	2	1	19. 35. 15·17	17·80	3	0·19	16·05	15·47
475	7 Leonis Minoris ..	5	0·29	9. 22. 40·51	3·656	5		55. 45. 41·54		5	0·29	41·54	15·62
476	θ Ursæ Majoris S.P.	4	0·79	9. 23. 56·82	4·054	5		37. 43. 8·23		5	0·77	8·23	16·14
477	ξ Leonis.....	3	0·51	9. 24. 46·50	3·239			78. 6.					
478	h Leonis.....	1	0·20	9. 24. 49·69	3·222	1		79. 41. 56·63		1	0·20	56·63	15·65
479	9 Leonis Minoris...	1	0·26	9. 25. 20·09	3·704	1		52. 55. 31·72		1	0·26	31·72	15·73
480	Piazzi IX. 124	5	0·28	9. 28. 48·98	3·575	5		58. 14. 38·20		5	0·28	38·20	15·87
481	8 Leonis.....	1	0·28	9. 29. 42·14	3·322	1		72. 58. 4·13		1	0·28	4·13	15·82
482	27 Ursæ Majoris...	1	0·23	9. 30. 38·34	5·698	1		17. 8. 44·88		1	0·23	44·88	16·00
483	Piazzi IX. 135	1	0·26	9. 31. 26·69	+ 3·386	1		69. 6. 15·93		1	0·26	15·93	+ 15·97

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Mean Right Ascensions and Mean North Polar Distances of Stars

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1867, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1867, Jan. 1. D.	Mean N.P.D. 1867, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
484	12 Leonis.....	1	0·28	9. 31. 33·75	+ 3·479	1		64. 2. 6·34		1	0·28	6·34	+ 15·95
485	43 Lyncis.....	3	0·49	9. 33. 45·38	3·747	3		49. 38. 15·84		3	0·49	15·84	16·17
				9. 33. (50.)									
486	Lal. (F.) 1479 S.P..			9. 33. 50·72	2·921	1		2. 47. 36·06		1	0·77	36·06	16·11
487	Bradley 1361	1	0·24	9. 33. 59·11	3·469	1		100. 10. 3·47		1	0·24	3·47	16·12
488	13 Leonis	2	0·30	9. 34. 3·04	3·206	2		63. 29. 0·11		2	0·30	0·11	16·13
489	o Leonis	3	0·19	9. 34. 41·22	3·648	1		79. 30. 12·74		1	0·20	12·74	16·16
490	13 Leonis Minoris..	1	0·34			1		54. 18. 1·92		1	0·34	1·92	16·23
491	f Leonis	1	0·26	9. 35. 45·01	3·539	1		59. 24. 57·84		1	0·26	57·84	16·32
492	Bradley 1364.....	2	0·60	9. 37. 5·28	4·306	2		32. 15. 47·33		2	0·60	47·33	16·28
493	14 Leonis Minoris..	3	0·26	9. 38. 11·23	3·871	3		44. 16. 10·82		3	0·26	10·82	16·48
494	ε Leonis	6	0·27	9. 38. 17·82	3·419	3	1	65. 36. 54·28	53·11	4	0·20	53·99	16·36
495	16 Leonis Minoris..	2	0·29	9. 42. 3·11	3·714	2		49. 45. 3·10		2	0·29	3·10	16·50
496	g Leonis.....	3	0·22	9. 44. 19·72	3·427	3		64. 58. 36·87		3	0·23	36·87	16·84
497	μ Leonis	6	0·28	9. 45. 11·71	3·424			63. 21.		2	0·18	48·84	16·76
498	8 Sextantis	2	0·18	9. 45. 55·38	2·975	2		97. 28. 48·84		2	0·23	14·21	16·77
499	31 Ursæ Majoris...	2	0·23	9. 47. 1·06	3·677	2		39. 33. 14·21		1	0·24	38·46	17·07
500	Lacaille 4072.....	1	0·24	9. 50. 22·46	2·662	1		120. 27. 38·46					
501	Bradley 1396.....	2	0·27	9. 51. 4·73	3·186	2		81. 3. 9·19		2	0·27	9·19	17·03
502	Piazzi IX. 221.....	3	0·31	9. 51. 55·60	3·500	3		59. 43. 8·80		3	0·31	8·80	17·13
503	π Leonis.....	6	0·27	9. 53. 10·99	3·177	1		81. 19. 8·55		1	0·36	8·55	17·09
504	20 Leonis Minoris..	2	0·23	9. 53. 20·22	3·479	4	2	57. 25. 25·30	24·99	6	0·25	25·20	17·52
505	Piazzi IX. 230.....	5	0·27	9. 55. 23·74	3·361	5		67. 24. 39·18		5	0·27	39·18	17·17
506	21 Leonis Minoris..	4	0·23	9. 59. 34·65	3·563	4		54. 6. 29·91		4	0·23	29·91	17·34
507	Regulus	18	0·43	10. 1. 17·17	3·203	9		77. 23. 2·76		9	0·63	2·76	17·42
508	Bradley 1408	2	0·20	10. 1. 50·14	3·300	2		70. 49. 1·80		2	0·20	1·80	17·39
509	Piazzi IX. 254.....	5	0·30	10. 2. 57·28	3·641	5		48. 41. 9·98		5	0·30	9·98	17·47
510	Bradley 1416.....	1	0·17	10. 6. 31·72	3·467	1		57. 55. 0·16		1	0·17	0·16	17·65
511	20 Sextantis	1	0·23	10. 7. 7·51	2·986	1		96. 43. 37·77		1	0·23	37·77	17·64
512	22 Leonis Minoris..	2	0·26	10. 7. 27·72	3·461	2		57. 52. 22·75		2	0·26	22·75	17·69
513	23 Leonis Minoris..	6	0·26	10. 8. 40·73	3·430	6		60. 1. 41·49		6	0·26	41·49	17·84
514	24 Leonis Minoris..	1	0·23	10. 8. 55·47	3·426	1	1	60. 39. 12·20	11·82	2	0·23	12·01	17·88
515	γ^1 Leonis	7	0·49	10. 12. 38·15	3·317	3		69. 29. 12·65		3	0·74	12·65	18·04
516	Bradley 1433.....	5	0·31	10. 14. 15·57	3·592	5		48. 5. 48·22		5	0·30	48·22	17·96
517	μ Ursæ Majoris....	2	0·52	10. 14. 23·72	3·603	1		47. 49. 58·74		1	0·23	58·74	17·93
	μ Ursæ Majoris S.P.					1		60·96					
518	27 Leonis Minoris..	1	0·26	10. 15. 26·24	3·483	1		55. 25. 18·28		1	0·26	18·28	18·09
519	28 Leonis Minoris..	3	0·28	10. 16. 29·39	3·471	3		55. 36. 35·44		3	0·28	35·44	18·11
520	29 Leonis Minoris..	2	0·29	10. 18. 4·34	3·483	2		53. 53. 55·29		2	0·29	55·29	18·19
521	30 Leonis Minoris..	1	0·23	10. 18. 16·99	3·461	2	1	55. 31. 39·33	39·62	3	0·19	39·43	18·19
522	Bradley 1449.....	1	0·18	10. 19. 37·52	3·004	1		95. 45. 5·10		1	0·18	5·10	18·07
523	Groombridge 1646 .	2	0·35	10. 19. 50·45	3·735	2		40. 30. 22·61		2	0·25	22·61	18·17
524	β Leonis Minoris...	1	0·23	10. 20. 11·07	3·493	1		52. 36. 44·60		1	0·23	44·60	18·28
525	Bradley 1446.....	1	0·23	10. 23. 41·88	5·324	1	1	13. 36. 13·07	12·51	2	0·23	12·79	18·31
526	33 Leonis Minoris..	6	0·27	10. 24. 17·93	3·430	6		56. 56. 20·20		6	0·27	20·20	18·32
527	ρ Leonis	4	0·30	10. 25. 48·39	3·166	1		80. 0. 35·31		1	0·36	35·31	18·42
528	49 Leonis.....	2	0·28	10. 28. 3·36	3·158	2		80. 39. 48·95		2	0·28	48·95	18·51
529	Bradley 1472.....	3	0·29	10. 28. 38·08	2·830	3		112. 29. 27·34		3	0·29	27·34	18·13
530	35 Leonis Minoris..	3	0·30	10. 28. 43·02	+ 3·469	3		52. 59. 4·71		3	0·30	4·71	+ 18·51

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				h m s	s			° ′ ″	″			″	″
531	36 Leonis Minoris..	5	0·30	10. 30. 19·18	+ 3·428	5		55. 13. 57·30		5	0·30	57·30	+ 18·60
532	Groombridge 1671 .			10. 32. (59.)		1	1	20. 42. 10·82	12·03	2	0·17	11·43	18·63
533	Piazzi X. 131	4	0·32	10. 34. 43·83	3·380	4		57. 36. 29·40		4	0·32	29·40	18·66
534	39 Ursæ Majoris ...	1	0·97	10. 35. 18·32	3·849	1		32. 6. 12·57		1	0·97	12·57	18·77
535	40 Leonis Minoris..	2	0·31	10. 35. 43·50	3·311	2		62. 58. 37·25		2	0·31	37·25	18·78
536	34 Sextantis.....	1	0·34	10. 35. 45·30	3·100			85. 43.					
537	Bradley 1485.....	1	0·27	10. 36. 10·83	3·279	1		66. 6. 58·23		1	0·27	58·23	18·72
538	Bradley 1489.....	2	0·23	10. 36. 29·71	2·879	2		112. 51. 13·31		2	0·23	13·31	18·87
539	42 Leonis Minoris..	1	0·33	10. 38. 27·83	3·354	1		58. 37. 5·32		1	0·33	5·32	18·83
540	43 Leonis Minoris..	2	0·30	10. 41. 36·83	3·330	2		59. 52. 51·75		2	0·30	51·75	18·97
541	*l* Leonis	5	0·29	10. 42. 15·89	3·158	2		78. 45. 7·14		2	0·29	7·14	18·93
542	39 Sextantis.....	2	0·60	10. 42. 18·00	3·013	2		98. 23. 50·12		2	0·60	50·12	18·93
543	40 Sextantis	1	0·17	10. 42. 32·64	3·046	1		93. 19. 16·51		1	0·17	16·51	18·88
544	44 Leonis Minoris..	3	0·33	10. 42. 34·88	3·312	3		61. 19. 29·08		3	0·33	29·08	18·89
545	43 Ursæ Majoris S.P.	4	0·60	10. 42. 57·75	3·753	4		32. 42. 52·09		4	0·60	52·09	18·95
546	b^2 Hydræ.....	1	0·17	10. 44. 35·51	2·935	1		107. 37. 40·36		1	0·17	40·36	18·94
547	48 Leonis Minoris..	3	0·26	10. 47. 28·51	3·271	3		63. 48. 7·53		3	0·26	7·53	19·04
548	47 Leonis Minoris..	3	0·29	10. 47. 34·18	3·361	3		55. 15. 21·84		3	0·29	21·84	19·19
549	Bradley 1514.....	3	0·30	10. 48. 22·02	3·344	3		55. 47. 0·82		3	0·30	0·82	19·14
550	56 Leonis.....	1	0·17	10. 49. 7·07	3·123	1		83. 6. 20·40		1	0·17	20·40	19·09
551	50 Leonis Minoris..	3	0·32	10. 49. 21·14	3·272	3		63. 47. 25·55		3	0·32	25·55	19·12
552	49 Ursæ Majoris·..	5	0·28	10. 53. 22·73	3·391	5		50. 4. 27·15		5	0·28	27·15	19·23
553	Bradley 1521	2	0·66	10. 53. 34·34	4·600	2		13. 50. 36·53		2	0·66	36·53	19·21
554	*d* Leonis.....	4	0·27	10. 53. 41·46	3·099	1		85. 40. 9·54		1	0·28	9·54	19·25
555	*b* Leonis.....	2	0·31	10. 55. 13·59	3·213	2		69. 6. 26·28		2	0·31	26·28	19·23
556	α Ursæ Majoris	10	0·77	10. 55. 29·66	3·768	4		27. 31. 54·12		10	0·75	54·06	19·36
	α Ursæ Majoris S.P.					6		54·00					
557	Lalande (F) 1729 ..	5	0·43	10. 56. 14·94	15·900	3		1. 38. 20·66		4	0·38	20·29	19·28
	Lalande(F)1729 S.P.					1		19·20					
558	51 Ursæ Majoris...	1	0·23	10. 57. 7·11	3·363	1		51. 2. 34·33		1	0·23	34·33	19·36
559	Piazzi X. 228	2	0·20	10. 57. 19·78	3·323	2		51. 2. 14·13		2	0·20	14·13	19·31
560	χ Leonis.....	2	0·65	10. 58. 9·24	3·098	1		81. 56. 45·27		1	0·28	45·27	19·41
561	64 Leonis.....	2	0·29	11. 0. 32·32	3·227	2		65. 57. 28·77		2	0·29	28·77	19·40
562	67 Leonis.....	2	0·34	11. 1. 40·67	3·235	2		64. 37. 19·83		2	0·34	19·83	19·42
563	Piazzi X. 252	1	0·32	11. 1. 59·85	3·332	1		52. 58. 11·56		1	0·32	11·56	19·43
564	δ Leonis	11	0·47	11. 7. 1·88	3·203	7		68. 44. 52·72		7	0·64	52·72	19·67
565	Piazzi XI. 22	5	0·33	11. 9. 0·82	3·143	5		76. 25. 42·43		5	0·35	42·43	19·56
566	σ Leonis.....	4	0·45	11. 14. 16·63	3·095	4		83. 14. 32·50		4	0·45	32·50	19·69
567	Piazzi XI. 43			11. 14. (52.)		1	1	24. 56. 32·71	32·36	2	0·20	32·53	19·67
568	71 Leonis.....	5	0·33	11. 15. 31·16	3·155	5		71. 50. 1·21		5	0·33	1·21	19·68
569	Piazzi XI. 60	2	0·31	11. 18. 4·95	3·126	2		77. 50. 22·13		2	0·31	22·13	19·75
570	τ Leonis.....	1	0·33	11. 21. 5·77	3·085			86. 24.					
571	57 Ursæ Majoris...	3	0·55	11. 21. 53·92	3·257	3		49. 55. 52·94		3	0·55	52·94	19·79
572	85 Leonis.....	4	0·33	11. 22. 46·08	3·132	4		73. 51. 9·09		4	0·33	9·09	19·85
573	λ Draconis.....	1	0·25	11. 23. 28·51	3·648	2	1	19. 56. 6·48	7·40	3	0·24	6·79	19·86
574	86 Leonis.....	2	0·34	11. 23. 32·48	3·145	2		70. 51. 29·32		2	0·34	29·32	19·79
575	88 Leonis (1st Star)	1	0·31	11. 24. 52·16	3·105	1		74. 53. 29·17		1	0·31	29·17	20·01
576	88 Leonis (2d Star).	3	0·32	11. 24. 52·80	3·105	3		74. 53. 41·58		3	0·32	41·58	20·01
577	Radcliffe 2705 S.P..			11. 25. (0.)		2		3. 38. 59·58		2	0·88	59·58	19·82
578	Bradley 1579.....	1	0·97	11. 26. 19·66	+ 2·965	1		120. 21. 11·31		1	0·97	11·31	+ 19·89

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				h m s	s			° ′ ″	″			″	″
674	65 Virginis	1	0·34	13. 16. 25·50	+ 3·100	1		94. 13. 38·03		1	0·34	38·03	+ 18·98
675	66 Virginis	2	0·37	13. 17. 37·89	3·117	2		94. 28. 3·67		2	0·37	3·67	18·94
676	Spica	20	0·61	13. 18. 11·33	+ 3·150	12		100. 27. 58·12		12	0·72	58·12	18·94
677	Groombridge 2007..	1	0·39	13. 20. 5·20	− 2·685	1		4. 33. 0·09		1	0·39	0·09	18·84
678	Piazzi XIII. 109...			13. 22. (46.)		1	1	16. 55. 1·32	1·39	2	0·27	1·36	18·79
679	B. F. 1857 (1st Star)	1	0·27	13. 24. 28·92	+ 2·847	1		65. 4. 46·51		1	0·27	46·51	18·70
680	B. F. 1857 (2d Star)	5	0·32	13. 24. 33·82	2·847	5		65. 4. 34·05		5	0·32	34·05	18·70
681	Piazzi XIII. 112...	1	0·40	13. 25. 8·94	3·333	1		118. 52. 47·01		1	0·40	47·01	18·72
682	Piazzi XIII. 133...	1	0·36	13. 25. 50·92	0·446	3	2	10. 40. 7·71	7·84	5	0·33	7·76	18·64
683	*h* Virginis	1	0·29	13. 25. 57·89	3·150	1		99. 28. 43·41		1	0·29	43·41	18·68
684	ζ Virginis	13	0·51	13. 27. 55·03	3·052	1		89. 54. 51·56		1	0·39	51·56	18·53
685	1 Boötis	1	0·39	13. 34. 19·28	2·866	3	2	69. 22. 14·24	15·26	5	0·33	14·65	18·36
686	*m* Virginis.....	2	0·34	13. 34. 38·02	3·138	1		98. 1. 50·95		1	0·33	50·95	18·37
687	2 Boötis	2	0·30	13. 34. 44·74	2·842	1		66. 49. 46·19		1	0·33	46·19	18·35
688	B. F. 1883	1	0·33	13. 37. 28·10	2·834	2		66. 37. 41·37		2	0·30	41·37	18·27
689	*i* Centauri	1	0·40	13. 38. 8·28	3·386	1		122. 22. 10·28		1	0·40	10·28	18·46
690	τ Boötis	3	0·56	13. 40. 56·53	2·852	4	4	71. 52. 44·34	44·87	8	0·35	44·61	18·09
691	Groombridge 2053 .	1	0·42	13. 42. 7·84	0·168	1		11. 16. 8·90		1	0·42	8·90	18·03
692	η Ursæ Majoris....	11	0·84	13. 42. 17·79	2·373	7		40. 1. 19·96		12	0·78	19·91	18·11
	η Ursæ Majoris S.P.					5		19·78					
693	k^1 Centauri	1	0·40	13. 44. 9·38	3·442	1		122. 20. 0·20		1	0·40	0·20	18·12
694	k^2 Centauri	1	0·40	13. 44. 10·09	3·442	1		122. 20. 1·72		1	0·40	1·72	18·12
695	B. F. 1907	5	0·33	13. 45. 55·41	2·651	5		54. 53. 45·69		5	0·33	45·69	17·95
696	Piazzi XIII. 228...	1	0·39	13. 46. 9·06	+ 2·897	1		72. 36. 44·11		1	0·39	44·11	17·69
697	Piazzi XIII. 263...	1	0·42	13. 46. 17·10	− 2·133	1		6. 34. 50·53		1	0·42	50·53	18·03
698	*i* Draconis			13. 47. (34.)		1	1	24. 37. 8·98	8·66	2	0·35	8·82	17·95
699	η Boötis	10	0·78	13. 48. 21·11	+ 2·858	8		70. 56. 4·20		8	0·81	4·20	18·21
700	9 Boötis	1	0·33	13. 50. 29·76	2·743	1		61. 51. 18·11		1	0·33	18·11	17·82
701	10 Boötis	2	0·33	13. 52. 25·00	2·816	2		67. 39. 13·86		2	0·33	13·86	17·71
702	τ Virginis	2	0·40	13. 54. 52·71	3·047			87. 48.					
703	11 Boötis	1	0·33	13. 55. 8·60	2·725	1		61. 58. 11·56		1	0·33	11·56	17·56
704	94 Virginis	1	0·44	13. 59. 15·46	3·166	1		98. 15. 20·60		1	0·44	20·60	17·41
705	α Draconis.....	5	0·83	14. 0. 47·47	1·619	6	1	24. 59. 15·47	16·11	7	0·70	15·56	17·33
706	Piazzi XIII. 316...	5	0·33	14. 2. 36·68	2·408	5		45. 30. 42·70		5	0·33	42·70	17·37
707	κ Virginis			14. 5. (48.)		1		99. 39. 11·70		1	0·14	11·70	17·09
708	3 Ursæ Minoris....	2	0·40	14. 5. 55·08	0·426	2		14. 46. 33·61		2	0·40	33·61	17·03
709	ι Virginis	1	0·33	14. 9. 2·54	3·140	1		95. 21. 51·45		1	0·33	51·45	17·37
710	Arcturus	20	0·68	14. 9. 35·74	2·734	15		70. 7. 26·00		15	0·81	26·00	18·91
711	Groombridge 2091 .			14. 9. (36.)		1	1	19. 56. 32·83	32·69	2	0·33	32·76	16·93
712	Bradley 1848.....	5	0·34	14. 9. 49·01	2·820	6		70. 28. 3·61		6	0·34	3·61	16·98
713	λ Virginis	2	0·15	14. 11. 55·02	3·235	2		102. 45. 25·97		2	0·15	25·97	16·80
714	A Boötis	5	0·35	14. 12. 22·41	2·530	5		53. 52. 32·66		5	0·35	32·66	16·80
715	Bradley 1856.....	1	0·41	14. 12. 37·22	2·134	1		38. 4. 35·87		1	0·41	35·87	16·72
716	Groombridge 2100..	5	0·35	14. 14. 20·03	2·463	5		50. 35. 36·79		5	0·35	36·79	16·71
717	*f* Boötis	4	0·37	14. 20. 16·19	2·796	1	1	70. 10. 25·60	26·79	2	0·33	26·20	16·38
718	52 Hydræ.....	2	0·36	14. 20. 23·52	3·492	2		118. 53. 32·24		2	0·36	32·24	16·46
719	θ Boötis	2	0·37	14. 20. 40·07	2·040	2		37. 31. 59·82		2	0·37	59·82	16·81
720	106 Virginis	1	0·35	14. 21. 40·96	+ 3·159	1		96. 18. 6·43		1	0·35	6·43	+ 16·39

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				h m s	s			° ′ ″	″			″	″
721	Groombridge 2116.	3	0·34	14. 24. 22·28	+ 2·353	3		47. 36. 9·35		3	0·34	9·35	+ 16·21
722	ρ Boötis	3	0·72	14. 26. 5·86	+ 2·587	4	1	59. 2. 35·50	37·11	5	0·71	35·82	15·98
723	5 Ursæ Minoris....	3	0·39	14. 27. 50·47	− 0·217	3		13. 42. 45·43		3	0·39	45·43	16·05
724	Groombridge 2135.	2	0·34	14. 33. 12·80	+ 2·265	2		45. 46. 58·43		2	0·35	58·43	15·74
725	Piazzi XIV. 150...	5	0·37	14. 35. 31·89	3·643	5		124. 35. 53·24		5	0·37	53·24	15·87
726	o Boötis	2	0·34	14. 39. 2·18	2·797	2		72. 28. 15·98		2	0·35	15·98	15·46
727	ε Boötis	9	0·71	14. 39. 10·72	2·619	9	1	62. 21. 49·02	48·21	10	0·70	48·94	15·40
728	α^2 Libræ	5	0·37	14. 43. 31·50	3·305	2		105. 29. 13·63		2	0·31	13·63	15·22
729	B. F. 2033.....	4	0·38	14. 45. 14·60	2·385	4		52. 10. 51·17		4	0·38	51·17	15·06
730	ξ^1 Libræ.....	1	0·25	14. 47. 9·88	3·248	1		101. 21. 14·15		1	0·25	14·15	15·00
731	Piazzi XIV. 204...	1	0·42	14. 47. 35·34	3·655	1		123. 18. 46·61		1	0·42	46·61	14·97
732	ξ^2 Libræ.....	2	0·37	14. 49. 33·26	3·244			100. 52.					
733	Piazzi XIV. 226...	2	0·34	14. 50. 59·58	+ 2·797	2		73. 4. 29·73		2	0·34	29·73	14·68
734	β Ursæ Minoris....	7	0·78	14. 51. 7·41	− 0·252	9	2	15. 18. 3·65	3·54	11	0·65	3·63	14·76
735	B. F. 2051.....	5	0·39	14. 54. 20·01	+ 2·292	5		49. 49. 32·22		5	0·39	32·22	14·53
736	β Boötis.....	1	0·39	14. 56. 56·12	2·261	1		49. 5. 1·10		1	0·39	1·10	14·43
737	ψ Boötis.....	4	0·39	14. 58. 44·78	2·570	1		62. 31. 55·23		1	0·39	55·23	14·25
738	ν^1 Libræ.....	1	0·37	14. 59. 12·71	3·334	1		105. 44. 19·84		1	0·37	19·84	14·26
739	ι^1 Libræ.....	1	0·15	15. 4. 38·66	3·407	1		109. 17. 10·57		1	0·15	10·57	13·93
740	Groombridge 2201.	5	0·36	15. 8. 31·73	2·284	5		51. 14. 8·96		5	0·36	8·96	13·64
741	β Libræ	5	0·34	15. 9. 51·15	3·219	2		98. 53. 23·27		2	0·34	23·27	13·57
742	δ Boötis	1	0·25	15. 10. 8·42	2·421	1		56. 11. 15·06		1	0·25	15·06	13·63
743	σ^2 Libræ	6	0·39	15. 15. 36·92	3·333			104. 39.					
744	50 Boötis.....	2	0·36	15. 16. 29·04	2·403	2		56. 35. 19·71		2	0·36	19·71	13·10
745	Piazzi XV. 54.....	4	0·37	15. 16. 34·59	3·282	4		101. 53. 33·30		4	0·37	33·30	13·21
746	μ^1 Boötis	3	0·35	15. 19. 27·96	2·264	3		52. 9. 18·18		3	0·35	18·18	12·84
747	τ^1 Serpentis.....	3	0·34	15. 19. 37·36	2·782	3		74. 6. 8·66		3	0·34	8·66	12·84
748	ζ^1 Libræ.....	6	0·40	15. 20. 45·59	+ 3·374	1		106. 15. 1·48		1	0·45	1·48	12·89
749	γ^2 Ursæ Minoris...	3	0·73	15. 20. 57·76	− 0·134	3		17. 41. 33·93		3	0·73	33·93	12·77
750	Groombridge 2283. Groom. 2283 S.P...	2	0·48	15. 21. 17·86	−23·001	2 1	1	2. 15. 41·07 39·45	40·79	4	0·34	40·60	12·80
751	θ Coronæ.....	1	0·34	15. 27. 34·06	+ 2·415	1		58. 11. 25·35		1	0·34	25·35	12·40
752	γ Libræ	3	0·40	15. 28. 5·47	3·344	2		104. 20. 36·73		2	0·41	36·73	12·32
753	α Coronæ	16	0·62	15. 29. 3·44	2·538	10		62. 50. 9·89		10	0·83	9·89	12·35
754	40 Libræ	2	0·44	15. 30. 29·62	3·663	2		119. 20. 16·71		2	0·44	16·71	12·25
755	Groombridge 2253.	5	0·40	15. 30. 36·41	2·058	5		46. 23. 26·19		5	0·40	26·19	12·17
756	τ^6 Serpentis.....	3	0·38	15. 34. 52·35	2·757	3		73. 32. 39·32		3	0·38	39·32	11·80
757	α Serpentis	10	0·71	15. 37. 43·12	2·949	7		83. 9. 14·68		7	0·84	14·68	11·61
758	π Coronæ	1	0·39	15. 38. 44·85	2·359	1		57. 3. 45·01		1	0·39	45·01	11·57
759	χ Lupi	4	0·42	15. 42. 30·95	3·794	4		123. 13. 7·67		4	0·42	7·67	11·38
760	κ Serpentis	3	0·38	15. 42. 45·26	2·696	3		71. 26. 44·05		3	0·38	44·05	11·36
761	δ Coronæ			15. 44. (1.)		1	1	63. 31. 22·16	21·67	2	0·47	21·92	11·24
762	ε Serpentis.....	3	0·42	15. 44. 11·24	2·987	1		85. 7. 11·45		1	0·39	11·45	11·13
763	θ Libræ	2	0·38	15. 46. 15·44	3·408	2		106. 20. 11·01		2	0·38	11·01	10·93
764	Oeltz. Arg. 15028..	1	0·48	15. 48. 16·56	3·660	1		117. 39. 37·53		1	0·48	37·53	10·90
765	ξ^1 Lupi.....	1	0·40	15. 48. 23·54	3·822	1		123. 34. 25·56		1	0·40	25·56	10·90
766	ξ^2 Lupi.....	1	0·40	15. 48. 24·31	+ 3·822	1		123. 34. 21·32		1	0·40	21·32	10·90
767	ζ Ursæ Minoris.... ζ Ursæ Minoris S.P.	2	0·44	15. 48. 51·92	− 2·295	2 1	1	11. 47. 52·96 52·37	50·86	4	0·58	52·29	+ 10·86
768	γ Serpentis	3	0·47	15. 50. 18·68	+ 2·768			73. 53.					

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				h m s	s			° ′ ″	″			″	″
867	Oeltz. Arg. 17415..	1	0·48	17. 38. 43·94	+ 2·546	1		68. 26. 54·58		1	0·48	54·58	+ 1·85
868	μ Herculis	8	0·60	17. 41. 15·27	2·342	3	1	62. 11. 59·70	57·19	4	0·72	59·07	2·37
869	z Herculis	2	0·45	17. 46. 34·68	1·568	2		41. 34. 7·60		2	0·45	7·60	1·16
870	Piazzi XVII. 281 ..	1	0·46	17. 48. 40·16	3·443	2		105. 47. 8·45		2	0·46	8·45	1·18
								63. 55.					
871	89 Herculis	6	0·50	17. 50. 3·32	2·419			113. 48. 3·01		2	0·65	3·01	0·74
872	4 Sagittarii	2	0·65	17. 51. 40·43	3·662	2		114. 16. 11·09		1	0·41	11·09	0·74
873	5 Sagittarii	1	0·41	17. 52. 2·35	3·684	1		38. 29. 38·94		2	0·91	38·94	0·61
874	γ Draconis	3	0·91	17. 53. 31·12	1·392	2		110. 43. 59·40		1	0·54	59·40	0·61
875	Piazzi XVII. 323 ..	1	0·54	17. 54. 41·25	3·575	1							
876	7 Sagittarii	2	0·47	17. 54. 42·17	3·669	2		114. 16. 40·68		2	0·47	40·68	0·49
877	68 Ophiuchi.....	1	0·48	17. 55. 0·36	3·043	1		88. 41. 18·48		1	0·48	18·48	0·39
878	95 Herculis(1st Star)	1	0·48	17. 55. 51·52	2·544	1		68. 24. 4·80		1	0·48	4·80	0·30
879	95 Herculis (2dStar)	1	0·48	17. 55. 52·03	2·544	1		68. 24. 5·66		1	0·48	5·66	0·30
880	96 Herculis	1	0·48	17. 56. 41·94	+ 2·562	2		69. 9. 52·18		2	0·47	52·18	0·28
881	ψ² Draconis	3	0·57	17. 57. 29·52	− 1·046	3		17. 58. 58·53		3	0·57	58·53	+ 0·50
882	98 Herculis	2	0·50	18. 0. 25·82	+ 3·621	2		67. 47. 29·29		2	0·50	29·29	− 0·07
883	72 Ophiuchi.....	13	0·64	18. 1. 2·65	2·842	5		80. 27. 9·56		5	0·67	9·56	0·15
884	Piazzi XVII. 367 ..	1	0·68	18. 1. 31·24	3·868	1		120. 44. 46·41		1	0·68	46·41	0·00
885	100 Herculis(1st Star)	1	0·48	18. 2. 27·78	2·420	1		63. 55. 13·42		1	0·48	13·42	0·28
886	100 Herculis(2d Star)	1	0·48	18. 2. 27·85	2·420	1		63. 54. 59·52		1	0·48	59·52	0·28
887	101 Herculis	2	0·53	18. 3. 8·80	2·584	2		69. 58. 24·62		2	0·53	24·62	0·24
888	μ¹ Sagittarii.....	7	0·52	18. 5. 48·58	3·584	3		111. 5. 25·64		3	0·48	25·64	0·50
889	Groombridge 2533 .	5	0·54	18. 11. 30·62	1·865	5		47. 53. 4·39		5	0·54	4·39	1·01
890	36 Draconis			18. 13. (7.)		2	2	25. 38. 51·47	49·98	4	0·53	50·72	1·16
891	η Serpentis.....	2	0·66	18. 14. 25·64	3·101			92. 55.					
892	106 Herculis	2	0·53	18. 14. 40·32	2·542	2		68. 5. 35·09		2	0·53	35·09	1·27
893	δ Ursæ Minoris			18. 15. (5.)		7	1	3. 23. 42·36	43·29	8	0·67	42·48	1·35
894	109 Herculis	4	0·71	18. 18. 1·84	2·558	4		68. 17. 18·75		4	0·71	18·75	1·33
895	λ Sagittarii	1	0·23	18. 19. 45·89	3·702			115. 29.					
896	Groombridge 2563 .	2	0·68	18. 20. 3·81	1·856	2		47. 36. 13·00		2	0·68	13·00	1·75
897	Piazzi XVIII. 72...	1	0·68	18. 21. 17·72	3·941	1		123. 7. 48·71		1	0·68	48·71	1·86
898	W. B. XVIII. 483..	1	0·63	18. 21. 26·31	2·920	1		83. 28. 46·51		1	0·63	46·51	1·87
899	Bradley 2313.....	2	0·50	18. 21. 36·92	3·420	2		104. 38. 51·23		2	0·50	51·23	1·87
900	Piazzi XVIII. 79 ..	2	0·66	18. 22. 21·17	+ 3·937	2		123. 4. 19·19		2	0·66	19·19	1·83
901	χ Draconis	3	0·70	18. 23. 27·11	− 1·076	3		17. 19. 30·94		3	0·70	30·94	1·67
902	Piazzi XVIII. 100 .	4	0·53	18. 24. 4·91	+ 2·501	4		66. 13. 13·23		4	0·53	13·23	2·10
903	Piazzi XVIII. 116 .	2	0·60	18. 27. 14·14	2·499	3		66. 28. 49·02		3	0·57	49·02	2·38
904	α Lyræ	13	0·55	18. 32. 26·12	2·030	9	4	51. 20. 18·50	17·81	13	0·55	18·29	3·12
905	2 Aquilæ	4	0·61	18. 34. 59·47	3·285	3		99. 10. 36·16		3	0·58	36·16	3·04
906	Piazzi XVIII. 160 .	6	0·68	18. 35. 41·75	2·023	6		51. 45. 17·88		6	0·68	17·88	3·05
907	28 Sagittarii	1	0·53	18. 38. 19·27	3·625	1		112. 31. 41·61		1	0·53	41·61	3·35
908	110 Herculis	3	0·57	18. 39. 56·30	+ 2·586	3		69. 34. 43·96		3	0·57	43·96	3·12
909	Bradley 2412	3	0·56	18. 41. 39·30	− 7·768	3		6. 55. 47·02		3	0·56	47·02	3·62
910	Lacaille 7898.....	1	0·70	18. 44. 9·14	+ 3·858	1		120. 53. 18·96		1	0·70	18·96	3·84
911	ν² Lyræ	3	0·57	18. 44. 55·01	2·228	3		57. 36. 1·91		3	0·57	1·91	3·91
912	β Lyræ	6	0·58	18. 45. 10·22	2·212	4		56. 47. 23·72		4	0·68	23·72	3·90
913	ν¹ Sagittarii	1	0·53	18. 46. 8·23	3·622	1		112. 54. 18·89		1	0·53	18·89	4·00
914	113 Herculis	2	0·55	18. 49. 8·03	2·537	2		67. 31. 17·13		2	0·55	17·13	4·28
915	o¹ Draconis.....	2	0·73	18. 49. 13·03	0·883	2		30. 45. 55·63		2	0·73	55·63	4·28
916	o² Draconis.....	1	0·58	18. 49. 14·30	+ 0·883	1		30. 46. 23·87		1	0·58	23·87	− 4·28

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				h m s	s			° ′ ″	″			″	″
917	ξ^2 Sagittarii.....	1	0·68	18. 49. 47·53	+ 3·580	1		111. 16. 41·34		1	0·68	41·34	— 4·30
918	13 Lyræ	1	0·73	18. 51. 17·15	1·822	1		46. 13. 38·40		1	0·73	38·40	4·45
919	Bradley 2388.....	5	0·58	18. 52. 2·44	2·235	5		57. 16. 2·73		5	0·58	2·73	4·41
920	ϵ Aquilæ	3	0·57	18. 53. 35·12	2·718	1		75. 6. 36·30		1	0·70	36·30	4·54
921	o Sagittarii.....	3	0·49	18. 56. 42·68	3·595	3		111. 56. 0·21		3	0·49	0·21	4·86
922	ζ Aquilæ.....	6	0·60	18. 59. 17·76	2·752	1		76. 19. 55·20		1	0·64	55·20	5·06
923	Piazzi XVIII. 318 .	5	0·59	19. 1. 21·04	2·394	5		61. 34. 43·15		5	0·59	43·15	5·25
924	π Sagittarii	5	0·50	19. 1. 51·20	3·569	5		111. 13. 55·39		5	0·50	55·39	5·32
925	ι Lyræ	2	0·65	19. 2. 33·41	2·144	7	5	54. 6. 23·55	24·31	12	0·70	23·87	5·45
926	B. F. 2591.....	5	0·57	19. 6. 54·49	2·572	5		68. 40. 3·18		5	0·57	3·18	5·77
927	ω Aquilæ	4	0·66	19. 11. 34·38	2·814	1		78. 38. 31·93		1	0·39	31·93	6·18
928	δ Draconis	4	0·70	19. 12. 31·04	0·035	8	5	22. 34. 20·63	20·62	13	0·66	20·63	6·31
929	ρ^1 Sagittarii.....	2	0·58	19. 13. 57·41	3·484	2		108. 5. 42·23		2	0·58	42·23	6·39
930	κ Cygni.....	2	0·78	19. 14. 1·71	1·386	2		36. 52. 33·09		2	0·78	33·09	6·46
931	Groombridge 2812 .	5	0·59	19. 14. 31·34	2·004	6		49. 53. 0·02		6	0·59	0·02	6·41
932	50 Sagittarii	1	0·54	19. 18. 23·11	3·587	1		112. 2. 11·26		1	0·54	11·26	6·58
933	δ Aquilæ	4	0·59	19. 18. 47·51	3·024	1		87. 8. 53·70		1	0·70	53·70	6·86
934	π Draconis.....	1	0·61	19. 19. 58·60	0·330	1		24. 32. 29·37		1	0·61	29·37	6·89
935	4 Cygni	2	0·56	19. 21. 21·83	2·160	2		53. 56. 50·08		2	0·56	50·08	7·02
936	α Vulpeculæ.....	3	0·75	19. 23. 10·30	2·494	1	1	65. 35. 8·59	8·78	2	0·60	8·69	7·03
937	μ Aquilæ	7	0·66	19. 27. 35·50	+ 2·931	3		82. 54. 4·12		3	0·60	4·12	7·34
938	σ Draconis.....	4	0·65	19. 32. 36·77	— 0·110	7	3	20. 33. 54·49	54·82	10	0·64	54·59	6·10
939	Piazzi XIX. 237 ...	1	0·70	19. 36. 58·75	+ 3·806	1		121. 13. 10·59		1	0·70	10·59	8·11
940	γ Aquilæ	7	0·58	19. 39. 56·16	2·851			79. 42.					
941	δ Cygni.....	3	0·72	19. 40. 49·08	1·877	3		45. 11. 32·66		3	0·72	32·66	8·54
942	χ^1 Cygni (1st Star).	3	0·67	19. 41. 22·74	2·274	3		56. 34. 48·84		3	0·67	48·84	8·14
943	χ^1 Cygni (2nd Star)	1	0·69	19. 41. 24·70	2·274	1		56. 34. 40·12		1	0·69	40·12	8·14
944	α Aquilæ	9	0·52	19. 44. 17·60	2·927	4		81. 28. 51·16		4	0·48	51·16	9·20
945	*.....	1	0·73	19. 45. 50·61	+ 2·308	1		57. 27. 24·71		1	0·73	24·71	8·94
946	ϵ Draconis	6	0·65	19. 48. 36·49	— 0·169	6		20. 4. 14·60		7	0·68	14·62	9·14
	ϵ Draconis S.P.....					1		14·76					
947	β Aquilæ	4	0·61	19. 48. 46·79	+ 2·946	2		83. 55. 22·98		2	0·60	22·98	8·69
948	c Sagittarii	2	0·63	19. 54. 28·58	3·698	1		118. 4. 35·43		1	0·56	35·43	9·63
949	63 Sagittarii	2	0·61	19. 54. 31·45	+ 3·368	2		104. 0. 12·09		2	0·61	12·09	9·68
950	λ Ursæ Minoris....	1	0·73	19. 57. 11·25	— 58·414	1		1. 5. 24·14		2	0·45	24·17	9·79
	λ Ursæ Minoris S.P.					1		24·21					
951	17 Vulpeculæ	5	0·70	20. 1. 10·55	+ 2·577	9	4	66. 46. 1·80	1·34	13	0·72	1·66	10·12
952	θ Aquilæ	4	0·71	20. 4. 26·56	3·098	1		91. 12. 48·70		1	0·80	48·70	10·36
953	Lacaille 8386.....	1	0·70	20. 7. 34·66	3·739	1		120. 24. 30·12		1	0·70	30·12	10·60
954	Var. (R) Sagittæ ..	1	0·76	20. 7. 59·51	2·740	1		73. 40. 26·66		1	0·76	26·66	10·63
955	23 Vulpeculæ	2	0·60	20. 10. 15·49	2·484	2		62. 35. 31·77		2	0·60	31·77	10·80
956	α^2 Capricorni.....	10	0·68	20. 10. 40·40	+ 3·333	6		102. 57. 17·03		6	0·59	17·03	10·83
957	κ Cephei.....	5	0·61	20. 13. 18·76	— 1·887	5	1	12. 41. 25·47	26·56	7	0·68	25·61	11·02
	κ Cephei S.P.					1		25·37					
958	Bradley 2618.....	1	0·71	20. 13. 24·37	+ 2·128	1		49. 40. 52·44		1	0·71	52·44	11·05
959	β Capricorni	5	0·70	20. 13. 32·21	3·374			103. 11.					
960	Groombridge 3140..	3	0·70	20. 15. 26·09	2·173	3		51. 0. 53·40		3	0·70	53·40	11·17
961	Lacaille 8427.....	2	0·74	20. 16. 32·27	3·699	1		119. 30. 10·06		1	0·72	10·06	11·25
962	Lacaille 8442.....	2	0·77	20. 18. 22·91	3·695	2		119. 30. 12·95		2	0·77	12·95	11·39
963	ρ Capricorni.....	5	0·76	20. 21. 16·29	+ 3·426	2		108. 15. 4·08		2	0·77	4·08	— 11·59

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				h m s	s			° ′ ″	″			″	″
964	Lacaille 8466.....	2	0·77	20. 22. 47·81	+ 3·688	2		119. 33. 18·39		2	0·77	18·39	− 11·70
965	ω^1 Cygni.....	3	0·79	20. 22. 58·48	1·831	3		41. 3. 24·06		3	0·79	24·06	11·76
966	ε Delphini	9	0·71	20. 26. 51·49	2·866			79. 8.					
967	θ Cephei.....	2	0·44	20. 27. 20·59	+ 1·016	2	2	27. 27. 8·63	8·68	5	0·58	8·59	11·97
	θ Cephei S.P.....					1		8·17					
968	Bradley 2673.....	6	0·69	20. 30. 33·75	− 0·193	6		17. 55. 8·73		6	0·69	8·73	12·21
969	τ^2 Capricorni.....	2	0·73	20. 31. 49·95	+ 3·361	2		105. 25. 8·50		2	0·73	8·50	12·30
970	73 Draconis	1	0·77	20. 33. 13·87	− 0·716	1		15. 30. 6·25		1	0·77	6·25	12·40
971	α Delphini	5	0·77	20. 33. 27·60	+ 2·789			74. 33.					
972	49 Cygni	3	0·70	20. 35. 39·65	2·432	3		58. 9. 51·02		3	0·70	51·02	12·63
973	α Cygni	4	0·66	20. 36. 53·84	2·043	4		45. 11. 37·04			0·81	37·04	12·68
	α Cygni S.P.....					1		36·65					
974	ε Aquarii	5	0·68	20. 40. 28·43	3·251			99. 59.					
975	α Microscopii.....	2	0·80	20. 41. 39·15	3·786	2		124. 16. 6·41		2	0·80	6·41	12·85
976	η Cephei.....	3	0·61	20. 42. 34·77	1·231	3		28. 40. 36·95		4	0·69	36·98	13·93
	η Cephei S.P.					1		37·14					
977	32 Vulpeculæ.....	5	0·77	20. 48. 53·55	+ 2·554	5	5	62. 26. 49·06	48·84	10	0·63	48·95	13·48
978	76 Draconis.....	1	0·91	20. 52. 2·21	− 3·910	2	1	7. 57. 49·88	52·95	3	0·73	50·90	13·68
979	ν Cygni	2	0·73	20. 52. 12·89	+ 2·234	2		49. 20. 36·82		2	0·73	36·82	13·70
980	Bradley 2749.....	2	0·74	20. 53. 31·46	− 2·479	2		9. 56. 52·53		2	0·74	52·53	13·78
981	f^1 Cygni.....	·2	0·20	20. 55. 18·09	+ 2·032	1		42. 59. 48·06		1	0·76	48·06	13·84
	f^1 Cygni S.P.					2		48·39					
982	θ Capricorni.....	4	0·77	20. 58. 28·05	3·381	4		107. 45. 33·65		4	0·77	33·65	14·04
983	ξ Cygni.....	5	0·80	21. 0. 5·66	2·179	5		46. 36. 5·54		5	0·80	5·54	14·21
984	61 Cygni (1st Star)	1	0·91	21. 0. 56·27	2·674	2	1	51. 54. 11·95	11·09	3	0·75	11·66	17·49
985	61 Cygni (2nd Star)	1	0·91	21. 0. 57·77	2·679	1		51. 54. 18·34		1	0·91	18·34	17·24
986	ν Aquarii	2	0·77	21. 2. 20·79	3·272	2		101. 54. 30·48		2	0·77	30·48	14·28
987	ζ Cygni	4	0·77	21. 7. 16·61	2·548	2	2	60. 19. 2·55	1·51	4	0·68	2·03	14·56
988	77 Draconis.....			21. 8. (6.)		3	3	12. 24. 49·53	48·47	6	0·64	49·00	14·70
989	α Equulei	4	0·81	21. 9. 10·52	3·000	2		85. 18. 0·41		2	0·69	0·41	14·65
990	ι Capricorni	3	0·82	21. 14. 50·28	3·349	3		107. 23. 56·29		3	0·82	56·29	15·09
991	α Cephei.....	5	0·79	21. 15. 24·16	1·438	8	5	27. 58. 38·43	38·20	13	0·74	38·34	15·11
992	1 Pegasi.....	1	0·65	21. 15. 55·98	+ 2·778	1		70. 45. 46·09		1	0·65	46·09	15·22
993	Bradley 2832.....	1	0·63	21. 24. 6·74	− 4·527	1		6. 18. 20·72		1	0·63	20·72	15·30
994	g^1 Cygni.....	1	0·75	21. 24. 32·65	+ 2·203	1		44. 2. 41·33		1	0·75	41·33	15·73
995	β Aquarii.....	2	0·70	21. 24. 33·32	+ 3·163			96. 9.					
996	Groombridge 3548 .	1	0·23	21. 25. 36·68	− 10·490	1		3. 31. 7·26		1	0·77	7·26	15·67
997	β^1 Cephei	3	0·82	21. 26. 53·64	+ 0·801	3		20. 1. 26·37		3	0·82	26·37	15·71
998	β^2 Cephei	6	0·79	21. 26. 55·97	+ 0·801	7	1	20. 1. 21·94	21·30	8	0·79	21·86	15·71
999	7 Piscis Australis ..	1	0·64	21. 28. 49·13	3·621	1		123. 38. 27·97		1	0·64	27·97	15·86
1000	72 Cygni	1	0·75	21. 29. 20·72	2·348	1		52. 3. 40·92		1	0·75	40·92	16·00
1001	ϵ Capricorni.....	4	0·67	21. 29. 37·80	3·368	4		110. 3. 36·82		4	0·67	36·82	15·89
1002	ξ Aquarii	5	0·71	21. 30. 40·13	3·188			98. 26					
1003	γ Capricorni.....	4	0·65	21. 32. 43·10	3·308	4		107. 15. 40·95		4	0·65	40·95	16·03
1004	42 Capricorni.....	3	0·66	21. 34. 18·81	3·265	3		104. 38. 20·99		3	0·66	20·99	15·84
1005	Bradley 2854.....	3	0·67	21. 37. 18·17	0·862	4	1	19. 17. 29·25	29·61	5	0·75	29·32	16·35
1006	ε Pegasi	4	0·64	21. 37. 39·21	2·948			80. 44.					
1007	Bradley 2841.....	3	0·72	21. 37. 45·89	2·399	3		49. 27. 7·89		3	0·72	7·89	16·34
1008	Bradley 2833.....	1	0·75	21. 37. 49·50	3·216	1		99. 38. 45·73		1	0·75	45·73	16·15
1009	c^1 Capricorni.....	1	0·64	21. 37. 54·58	+ 3·201	1		99. 41. 29·80		1	0·64	29·80	− 16·33

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				h m s	s			° ′ ″	″			″	″
1010	λ Capricorni.....	1	0·77	21. 39. 22·42	+ 3·233	1		101. 58. 39·93		1	0·77	39·93	− 16·39
1011	8 Capricorni.....	1	0·65	21. 39. 41·79	3·317	1		106. 43. 44·74		1	0·65	44·74	16·13
1012	Bradley 2851.....	1	0·63	21. 39. 54·84	2·720	1		65. 1. 41·24		1	0·63	41·24	16·31
1013	11 Cephei	6	0·75	21. 39. 57·79	0·909	6	1	19. 18. 2·20	2·63	7	0·77	2·26	16·51
1014	ν Cephei.....	4	0·76	21. 41. 36·70	1·727	4		29. 29. 32·32		4	0·76	32·32	16·48
1015	μ Capricorni	2	0·84	21. 46. 2·53	3·279	3		104. 10. 33·71		3	0·87	33·71	16·75
1016	16 Pegasi.....	6	0·74	21. 47. 0·71	2·726	5	4	64. 41. 58·66	58·57	9	0·79	58·62	16·77
1017	79 Draconis	8	0·70	21. 51. 12·63	0·740	7	2	16. 55. 35·70	35·37	9	0·75	35·63	16·95
1018	η Piscis Australis ..	11	0·74	21. 53. 11·45	3·461	11		119. 5. 25·06		11	0·74	25·06	17·06
1019	Bradley 2884.....	1	0·60	21. 54. 55·82	2·021	1		32. 58. 39·51		1	0·60	39·51	17·16
1020	16 Cephei.....	1	0·76	21. 57. 20·50	0·880	3	3	17. 27. 10·11	10·45	6	0·74	10·28	17·06
1021	α Aquarii.....	11	0·72	21. 58. 57·07	3·082	3		90. 57. 52·58		3	0·77	52·58	17·31
1022	ι Aquarii	2	0·92	21. 59. 15·13	3·245	2		104. 30. 47·49		2	0·92	47·49	17·27
1023	15 Cephei.....	2	0·66	21. 59. 34·08	1·964	2		30. 49. 46·03		2	0·66	46·03	17·35
1024	ξ^1 Cephei	3	0·67	21. 59. 55·50	1·739	2		26. 1. 8·09		3	0·71	8·09	17·45
	ξ^1 Cephei S.P.....					1		8·11					
1025	ξ^2 Cephei	3	0·67	21. 59. 56·40	1·739	2		26. 1. 10·14		3	0·71	10·18	17·45
	ξ^2 Cephei S.P.....					1		10·27					
1026	μ Piscis Australis ..	3	0·66	22. 0. 36·95	3·529	3		123. 38. 11·47		3	0·66	11·47	17·41
1027	ι Pegasi	3	0·63	22. 0. 49·26	2·787	3	3	65. 18. 12·84	12·35	6	0·82	12·60	17·42
1028	20 Cephei.....	2	0·68	22. 0. 58·12	1·814	2		27. 51. 45·87		2	0·68	45·87	17·45
1029	35 Aquarii.....	1	0·60	22. 1. 41·21	3·298	1		109. 10. 10·38		1	0·60	10·38	17·45
1030	15 Piscis Australis .	3	0·66	22. 2. 20·83	3·544	2		123. 12. 0·83		2	0·66	0·83	17·48
1031	Bradley 2904.....	1	0·72	22. 2. 28·58	+ 3·175	1		98. 10. 59·50		1	0·72	59·50	17·48
1032	Groombridge 3707 .	2	0·66	22. 2. 50·35	− 1·701	3		7. 46. 16·08		3	0·65	16·08	17·46
1033	Bradley 2935.....	2	0·66	22. 2. 56·97	− 1·701	3		7. 46. 13·40		3	0·65	13·40	17·47
1034	39 Aquarii.....	1	0·64	22. 5. 15·18	+ 3·242	1		104. 50. 51·09		1	0·64	51·09	17·52
1035	Bradley 2938.....	1	0·65	22. 9. 38·75	1·878	1		27. 29. 49·44		1	0·65	49·44	17·84
1036	θ Aquarii	14	0·74	22. 9. 48·78	3·170	4		98. 26. 38·79		4	0·72	38·79	17·75
1037	Bradley 2942.....	2	0·64	22. 10. 27·79	1·112	2		17. 21. 10·82		2	0·64	10·82	17·81
1038	γ Aquarii.....	7	0·72	22. 14. 47·15	3·101			92. 3.					
1039	32 Pegasi.....	3	0·72	22. 15. 11·01	2·761	9	5	62. 20. 18·61	18·21	14	0·76	18·47	18·00
1040	β Lacertæ.....	3	0·70	22. 18. 19·99	2·350	3		38. 26. 11·49		3	0·70	11·49	17·90
1041	σ Aquarii	11	0·76	22. 23. 36·38	3·177	4		101. 21. 26·84		4	0·79	26·84	18·36
1042	β Piscis Australis ..	3	0·76	22. 23. 56·21	3·428	3		123. 1. 38·18		3	0·76	38·18	18·25
1043	δ^1 Cephei	1	0·71	22. 24. 13·16	2·217	1		32. 16. 33·12		1	0·71	33·12	18·31
1044	δ^2 Cephei	2	0·79	22. 24. 14·27	2·215	2		32. 15. 53·48		2	0·79	53·48	18·31
1045	28 Cephei.....	1	0·89	22 25. 39·06	0·520	2	1	11. 53. 31·74	30·88	3	0·85	31·45	18·32
1046	Groombridge 3804 .	4	0·73	22. 26. 33·86	2·641	6	2	50. 54. 13·13	12·55	8	0·69	12·99	18·41
1047	η Aquarii	7	0·81	22. 28. 31·26	3·082	1		90. 48. 8·17		1	0·87	8·17	18·42
1048	ρ Cephei.....	1	0·89	22. 28. 40·76	+ 0·599	1		11. 51. 29·93		1	0·89	29·93	18·45
1049	Radcliffe 5776	2	0·73	22. 29. 9·90	− 8·321	1		2. 35. 41·40		2	0·84	41·48	18·50
	Radcliffe 5776 S.P..					1		41·55					
1050	Groombridge 3834..	9	0·83	22. 29. 55·60	+ 1·115	9		14. 27. 31·72		9	0·83	31·72	18·64
1051	31 Cephei.....	2	0·80	22. 32. 29·02	1·489	2		17. 2. 48·32		2	0·80	48·32	18·65
1052	11 Lacertæ.....	4	0·76	22. 34. 41·18	2·617	4		46. 25. 3·00		4	0·76	3·00	18·68
1053	ζ Pegasi.....	9	0·74	22. 34. 49·74	2·987	1		79. 51. 43·31		1	0·75	43·31	18·69
1054	19 Piscis Australis..	6	0·75	22. 34. 57·84	3·349	6		120. 3. 18·24		6	0·75	18·24	18·60
1055	μ Pegasi.....	8	0·76	22. 43. 35·16	2·888	4	3	66. 6. 0·26	0·47	7	0·80	0·35	18·91
1056	ι Cephei.....	5	0·74	22. 44. 57·15	+ 2·117	5		24. 29. 54·83		5	0·74	54·83	− 18·85

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No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1867, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N. P. D. D.	Number of Obs. of N. P. D. R.	Mean N. P. D. 1867, Jan. 1. D.	Mean N. P. D. 1867, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N. P. D.	Annual Variation in N. P. D.
				h m s	s			° ′ ″	″			″	″
1057	λ Aquarii.....	8	0·76	22. 45. 40·45	+ 3·129	2		98. 17. 11·60		2	0·85	11·00	— 18·98
1058	Fomalhaut.....	7	0·83	22. 50. 17·71	3·329	7		120. 19. 34·23		7	0·84	34·23	18·96
1059	81 Aquarii.....	1	0·92	22. 54. 28·80	3·122	1		97. 46. 28·08		1	0·92	28·08	19·22
1060	Bradley 3058.....			22. 55. (22.)		4	4	6. 21. 57·68	56·24	8	0·69	56·96	19·31
1061	Piazzi XXII. 282 ..	1	0·82	22. 56. 7·83	3·340	1		125. 28. 4·33		1	0·82	4·33	19·32
1062	α Pegasi.....	4	0·45	22. 58. 8·25	2·983	2		75. 30. 35·24		2	0·21	35·24	19·31
1063	Bradley 3067.....	2	0·68	22. 58. 56·67	1·095	2		9. 56. 4·94		2	0·68	4·94	19·29
1064	Var. (R) Pegasi ...	3	0·83	22. 59. 58·19	3·012	3		80. 10. 26·63		3	0·73	26·63	19·37
1065	56 Pegasi.....	3	0·69	23. 0. 38·18	2·915	4	1	65. 14. 56·67	57·59	5	0·67	56·85	19·36
1066	5 Andromedæ	1	0·65	23. 1. 43·24	2·709	1		41. 25. 41·93		1	0·65	41·93	19·54
1067	π Cephei.....	1	0·89	23. 3. 40·61	1·888	1		15. 19. 51·36		1	0·89	51·36	19·41
1068	φ Aquarii.....	2	0·77	23. 7. 26·10	3·115	3		96. 45. 55·67		3	0·75	55·67	19·37
1069	γ Piscium.....	5	0·80	23. 10. 16·22	3·106	1		87. 26. 37·90		1	0·89	37·90	19·57
1070	ψ^2 Aquarii.....	2	0·85	23. 10. 59·45	3·122	3		99. 54. 29·26		3	0·80	29·26	19·58
1071	ο Cephei.....	5	0·84	23. 13. 10·45	2·440	6	2	22. 36. 57·20	57·65	8	0·83	57·31	19·66
1072	Bradley 3094.....	3	0·73	23. 13. 27·26	2·794	3		42. 20. 50·74		3	0·73	50·74	19·68
1073	12 Andromedæ	2	0·68	23. 14. 28·43	2·885	2		52. 32. 36·46		2	0·68	36·46	19·61
1074	*b* Aquarii.....	5	0·78	23. 15. 58·95	3·157	5		110. 49. 34·43		5	0·78	34·43	19·57
1075	Bradley 3107.....	1	0·65	23. 16. 8·35	3·005	1		70. 10. 11·25		1	0·65	11·25	19·69
1076	κ Piscium.....	6	0·77	23. 20. 6·80	3·075	4		89. 28. 20·24		4	0·80	20·24	19·63
1077	Bradley 3125.....	1	0·79	23. 21. 40·16	2·472	1		20. 22. 17·42		1	0·79	17·42	19·77
1078	71 Pegasi.....	3	0·75	23. 26. 48·63	2·998	5	2	68. 14. 6·16	6·50	7	0·78	6·26	19·82
1079	Bradley 3147..... Bradley 3147 S.P...	4	0·35	23. 27. 50·28	0·026	1 3		3. 25. 34·95 34·52		4	0·35	34·63	19·86
1080	16 Piscium.....	1	0·92	23. 29. 35·76	3·062	1		88. 38. 8·23		1	0·92	8·23	19·94
1081	Piazzi XXIII. 133.	5	0·73	23. 30. 45·65	3·124	5		103. 47. 49·57		5	0·73	49·57	19·91
1082	ι Andromedæ	2	0·89	23. 31. 37·17	2·920	2		47. 28. 5·30		2	0·89	5·30	19·92
1083	ι Piscium	4	0·79	23. 33. 6·55	3·084			85. 6.					
1084	γ Cephei..... γ Cephei S.P.	5	0·72	23. 33. 54·77	2·400	5 1	1	13. 6. 34·98 35·64	36·25	7	0·77	35·26	20·08
1085	λ Piscium.....	1	0·77	23. 35. 15·51	3·058	1		88. 57. 4·47		1	0·77	4·47	19·77
1086	Bradley 3166.....	2	0·74	23. 41. 34·22	2·824	3	2	22. 55. 54·97	55·30	5	0·76	55·10	19·98
1087	δ Sculptoris	3	0·81	23. 41. 59·57	3·132	1		118. 51. 55·11		1	0·92	55·11	19·92
1088	21 Piscium	2	0·85	23. 42. 38·88	3·070	2		89. 39. 44·14		2	0·85	44·14	19·96
1089	Piazzi XXIII. 200.	3	0·74	23. 43. 22·88	3·092	3		100. 42. 58·41		3	0·74	58·41	19·85
1090	83 Pegasi.....	2	0·72	23. 45. 54·86	3·039	2		68. 59. 46·85		2	0·72	46·85	20·01
1091	Groombridge 4163.	3	0·84	23. 48. 23·53	2·868	4	1	16. 19. 46·10	47·36	5	0·82	46·35	20·14
1092	Bradley 3187.....	1	0·74	23. 50. 16·23	2·649	1		7. 33. 0·08		1	0·74	0·08	20·00
1093	ψ Pegasi.....	2	0·78	23. 50. 59·10	3·050	3	1	65. 35. 52·30	53·05	4	0·82	52·49	20·03
1094	27 Piscium.....	2	0·70	23. 51. 51·88	3·068	2		94. 17. 37·57		2	0·70	37·57	20·04
1095	ω Piscium.....	3	0·74	23. 52. 28·91	3·078			83. 52.					
1096	Bradley 3193.....	2	0·73	23. 53. 57·61	3·017	2		28. 33. 47·37		2	0·73	47·37	20·05
1097	29 Piscium.....	2	0·85	23. 55. 0·46	3·072	2		93. 46. 3·85		2	0·85	3·85	20·04
1098	2 Ceti.....	2	0·82	23. 56. 55·50	3·077			108. 5.					
1099	33 Piscium.....	2	0·70	23. 58. 31·60	3·071	2		96. 27. 5·48		2	0·70	5·48	20·08
1100	Bradley 3212.....	4	0·58	23. 59. 42·86	+ 3·106	6	2	61. 42. 45·61	45·78	8	0·74	45·65	— 19·86

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NEW CONSTANTS FOR STARS IN THE CATALOGUE NOT INCLUDED IN THE GREENWICH SEVEN-YEAR CATALOGUE OF STARS FOR 1860, OR IN LATER ANNUAL CATALOGUES.

(N.B.—*New Constants are also given for all Stars within 5° of the Pole.*)

No. in Star-Catalogue for 1867.	Star's Name.	Logarithms of				Value of	Logarithms of				Value of
		e	f	g	h	l	e′	f′	g′	h′	l′
						″					″
8	Radcliffe 56	..	..	..	..	..	0·09472	9·30462	0·69656	0·09812	136·561
21	B. F. 34	0·10684	0·08222	1·44966	0·09440	82·952	9·95080	9·82011	0·70389	0·11594	132·437
26	Piazzi 0. 128	0·10733	0·08303	1·45014	0·09542	82·750	9·96298	9·80356	0·70925	0·12450	131·695
31	Piazzi 0. 148	0·10452	0·08312	1·44962	0·08963	83·403	9·93656	9·90278	0·71358	0·13032	128·457
41	Piazzi 0. 216	0·10224	0·08402	1·44852	0·08057	84·227	9·89131	0·05784	0·72879	0·14660	120·510
44	B. F. 92	0·10469	0·08499	1·45049	0·09066	83·119	9·95766	9·88522	0·73422	0·15142	126·192
54	31 Cassiopeiæ	0·13737	0·09603	1·46172	0·13342	75·775	0·10874	9·48537	0·75325	0·16608	126·798
57	44 Andromedæ	0·10908	0·08780	1·45318	0·09917	81·779	0·02251	9·75112	0·75536	0·16754	125·974
58	32 Cassiopeiæ	0·12971	0·09403	1·45979	0·12496	77·328	0·09916	9·52198	0·75566	0·16774	126·648
63	36 Ceti	0·10191	0·08605	1·44750	0·07613	84·494	9·86493	0·12217	0·76152	0·17165	114·512
67	87 Piscium	0·10251	0·08633	1·44992	0·08551	83·592	9·93369	9·97552	0·76306	0·17266	120·751
69	Polaris	...	...	...	...	...	0·17354	9·39258	0·76937	0·17664	121·944
73 & 74	35 Cassiopeiæ	0·12853	0·09592	1·46122	0·12377	77·261	0·11005	9·53887	0·77341	0·17909	124·262
77	47 Andromedæ	0·10685	0·08892	1·45330	0·09607	82·078	0·02107	9·79971	0·78081	0·18344	122·609
80	A Cassiopeiæ	0·13962	0·10257	1·46717	0·13607	74·477	0·13805	9·50679	0·79196	0·18962	121·495
84	Piazzi I. 104	0·10623	0·09013	1·45390	0·09549	82·032	0·02991	9·81060	0·80353	0·19568	120·190
88	* R. A. 1h. 34m. (23s.) N.P.D. 55°. 26′	1·10523	0·09075	1·45394	0·09416	82·154	0·02926	9·83253	0·82080	0·20414	118·311
91	Piazzi I. 170	0·10578	0·09191	1·45493	0·09549	81·858	0·04638	9·81419	0·83594	0·21109	117·012
92 & 93	1 Arietis	0·10196	0·09030	1·45181	0·08771	83·050	9·98064	9·93855	0·84070	0·21319	115·230
102	α Piscium	0·09984	0·09066	1·44862	0·07998	83·967	9·89443	0·06731	0·87062	0·22573	110·255
106	54 Cassiopeiæ	0·13918	0·11402	1·47672	0·13610	72·881	0·18253	9·57602	0·87679	0·22819	111·206
115	*b* Andromedæ	0·10678	0·09611	1·45836	0·09840	81·005	0·09451	9·78546	0·89469	0·23506	111·297
117 & 118	66 Ceti	0·09931	0·09163	1·44770	0·07810	84·138	9·86876	0·09512	0·89760	0·23616	107·857
123	Bradley 325	0·10772	0·09796	1·46009	0·10014	80·538	0·11368	9·77079	0·91316	0·24186	109·315
125	Piazzi II. 61	0·10493	0·09648	1·45804	0·09618	81·299	0·09100	9·81696	0·91907	0·24397	108·966
130	12 Trianguli	0·10120	0·09476	1·45483	0·09002	82·387	0·04135	9·90441	0·93390	0·24915	107·765
132	14 Trianguli	0·10254	0·09627	1·45688	0·09291	81·814	0·07504	9·86311	0·94322	0·25232	106·820
134	Piazzi II. 117	0·10187	0·09636	1·45663	0·09207	81·936	..	..	..	..	..
140	12 Persei	0·10305	0·09823	1·45880	0·09455	81·367	0·10123	9·84542	0·96824	0·26054	104·221
148	21 Persei	0·09960	0·09779	1·45669	0·08995	82·141	0·07196	9·91094	1·00708	0·27251	101·111
155	Piazzi III. 5	0·10095	0·10213	1·46158	0·09387	81·064	0·13456	9·86908	1·04942	0·28462	95·834
157	Groombridge 639	0·09968	0·10136	1·46032	0·09215	81·435	0·12130	9·88930	1·05678	0·28664	95·523
158	Piazzi III. 23	0·09830	0·10010	1·45856	0·08991	81·942	0·09667	9·91683	1·06004	0·28752	95·876
173	Piazzi III. 104	0·09697	0·10275	1·46063	0·09002	81·656	0·12620	9·92304	1·11278	0·30101	90·074
190	Groombridge 750	0·20711	0·27471	1·62022	0·20673	32·373	0·30477	9·83618	1·16585	0·31315	73·427
191	A^2 Tauri	0·09221	0·10096	1·45528	0·08404	82·971	0·04696	0·00521	1·16977	0·31398	87·590
192	Piazzi III. 237	0·09222	0·10097	1·45530	0·08405	82·968	0·04727	0·00504	1·16977	0·31398	87·580
194	Piazzi III. 249	0·09158	0·10052	1·45369	0·08285	83·256	0·01628	0·02297	1·17602	0·31530	88·020
200	Piazzi IV. 31	0·09368	0·10691	1·46424	0·08884	81·381	0·16548	9·95264	1·19912	0·31994	79·783
202	54 Persei	0·09226	0·10442	1·46061	0·08659	82·115	0·12785	9·97508	1·20091	0·32028	81·511
207	55 Persei	0·09175	0·10452	1·46051	0·08621	82·179	0·12694	9·98031	1·20938	0·32190	80·728
210	56 Persei	0·09171	0·10448	1·46045	0·08616	82·193	0·12607	9·98096	1·20972	0·32196	80·734
212	κ^2 Tauri	0·09028	0·10202	1·45569	0·08336	83·045	0·05450	0·01648	1·21289	0·32257	83·556
216	θ^1 Tauri	0·08955	0·10137	1·45351	0·08201	83·411	0·01174	0·03622	1·22020	0·32390	84·513
223	3 Camelopardali	0·09427	0·11454	1·47274	0·09124	79·910	0·22352	9·95109	1·23766	0·32696	72·017
231	Piazzi IV. 179	0·08796	0·10240	1·45471	0·08198	83·356	0·03583	0·03723	1·25569	0·32991	80·553
237	5 Camelopardali	0·09263	0·11728	1·47538	0·09025	79·674	0·23712	9·97024	1·26681	0·33158	67·673
241	Bradley 671	0·09727	0·13360	1·49163	0·09581	76·325	0·27935	9·96446	1·27677	0·33300	62·883
253	12 Aurigæ	0·08717	0·11187	1·46881	0·08497	81·377	0·20496	0·01425	1·30910	0·33707	65·312

For No. 8, log. e = 0·61813, log. f = 0·13265, log. g = 1·49449, log. h = 0·61805, and l = − 68″·919.
For No. 69, log. e = 0·57999, log. f = 0·30619, log. g = 1·64924, log. h = 0·57992, and l = − 84″·181.

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No. in Star-Catalogue for 1867.	Star's Name.	Logarithms of e	f	g	h	Value of l	Logarithms of e′	f′	g′	h′	Value of l′
595	66 Ursæ Majoris	0·03207	0·08135	1·44980	0·03987	91·725	0·00268	0·30983	1·65354	0·09621	48·581
596	η Crateris	0·05330	0·08035	1·44797	0·08622	87·502	9·88683	9·96270	1·65355	0·09570	82·588
601	Groombridge 1850.....	9·20440	0·08242	1·45103	9·21019	137·815	0·07225	0·34202	1·65374	0·08235	41·240
605	Piazzi XII. 3	0·05096	0·07871	1·44806	0·06616	89·136	9·90779	0·22264	1·65372	0·07282	64·412
606	68 Ursæ Majoris.....	0·03138	0·07817	1·44753	0·03907	92·215	9·97759	0·31090	1·65371	0·07094	51·611
608	Bradley 1633	9·94178	0·07634	1·44587	9·94519	102·796	0·03647	0·33815	1·65370	0·07041	44·888
613 & 614	Bradley 1642	9·89234	0·07228	1·44242	9·89528	108·083	0·03607	0·33972	1·65356	0·06254	45·261
615	9 Comæ	0·05075	0·07764	1·44763	0·06567	89·290	9·89927	0·22596	1·65345	0·05846	65·481
618	10 Comæ	0·05068	0·07759	1·44759	0·06550	89·313	9·89938	0·22712	1·65344	0·05789	65·402
620	Bradley 1672	..	..	..	..	..	0·05146	0·34197	1·65338	0·05598	44·452
622	Piazzi XII. 75	0·05187	0·07703	1·44750	0·06799	89·113	9·88762	0·20844	1·65312	0·04898	68·327
630	Piazzi XII. 122	0·04929	0·07573	1·44660	0·06273	89·790	9·88880	0·24428	1·65239	0·03413	65·831
647	29 Comæ.....	0·05392	0·07459	1·44725	0·07285	88·837	9·86552	0·16194	1·65048	0·00734	76·271
650	41 Virginis	0·05422	0·07409	1·44726	0·07363	88·799	9·86386	0·15311	1·64966	9·99811	77·709
663	Piazzi XII. 283	0·05412	0·07222	1·44646	0·07177	89·121	9·84751	0·17329	1·64636	9·96716	78·810
665	18 Canum Venaticûm ...	0·04712	0·07000	1·44306	0·05821	90·893	9·83771	0·26381	1·64584	9·96288	70·859
668	19 Canum Venaticûm ...	0·04726	0·06945	1·44276	0·05828	90·940	9·83072	0·26322	1·64485	9·95490	71·735
670	Piazzi XIII. 41	0·05478	0·07155	1·44664	0·07326	89·008	9·84776	0·15728	1·64453	9·95256	81·138
677	Groombridge 2007.....	9·61332	9·96006	1·34860	9·61596	139·831	9·91603	0·32972	1·64190	9·93328	61·929
679 & 680	B. F. 1857	0·05363	0·06949	1·44477	0·06859	89·683	9·81598	0·20228	1·64056	9·92407	80·365
695	B. F. 1907	0·05194	0·06582	1·44171	0·06372	90·601	9·76967	0·23421	1·63294	9·87726	82·038
706	Piazzi XIII. 316	0·04908	0·06159	1·43776	0·05832	91·726	9·72673	0·25592	1·62582	9·83883	83·660
712	Bradley 1848	0·05703	0·06522	1·44429	0·07190	89·561	9·78647	0·17089	1·62245	9·82171	90·766
714	A Boötis.....	0·05341	0·06253	1·43992	0·06417	90·830	9·72230	0·22893	1·62122	9·81566	87·940
716	Groombridge 2100.....	0·05235	0·06156	1·43875	0·06234	91·175	9·71063	0·23774	1·62022	9·81081	87·719
724	Groombridge 2135.....	0·05190	0·05780	1·43560	0·06035	91·824	9·65973	0·24238	1·61004	9·76368	91·498
729	B. F. 2033	0·05562	0·05853	1·43752	0·06489	91·086	9·65543	0·22022	1·60270	9·73204	95·621
733	Piazzi XIV. 226.....	0·06025	0·06172	1·44396	0·07376	89·481	9·76879	0·15042	1·59909	9·71701	99·269
735	B. F. 2051	0·05568	0·05684	1·43604	0·06416	91·353	9·62706	0·22204	1·59690	9·70808	97·524
740	Groombridge 2201.....	0·05760	0·05589	1·43591	0·06580	91·190	9·60509	0·21114	1·58710	9·66946	101·224
750	Groombridge 2283.....	..	..	..	..	..	9·61679	0·26434	1·57754	9·63379	97·582
755	Groombridge 2253.....	0·05849	0·05184	1·43229	0·06501	91·721	9·52802	0·20906	1·57011	9·60733	106·392
760	κ Serpentis	0·06460	0·05763	1·44248	0·07459	89·518	9·72082	0·13964	1·55990	9·57268	109·469
764	Oeltz. Arg. 15028.....	0·06412	0·05570	1·45728	0·08599	87·737	0·08117	9·97666	1·55508	9·55695	104·079
771	λ Coronæ.....	0·06245	0·05235	1·43403	0·06888	91·028	9·52504	0·18497	1·55269	9·54934	111·652
775	Piazzi XV. 239.....	0·06310	0·05262	1·43474	0·06957	90·875	9·53173	0·18029	1·54998	9·54076	112·371
777	43 Serpentis	0·06662	0·05783	1·44657	0·07803	88·819	9·83746	0·09607	1·54706	9·53175	110·820
779	Piazzi XV. 266.....	0·06363	0·05230	1·43459	0·06989	90·850	9·52427	0·17744	1·54597	9·52845	113·398
785	Bradley 2048	0·06700	0·05737	1·44540	0·07731	88·964	9·80325	0·10607	1·54237	9·51756	112·123
786	*q* Herculis.....	0·06662	0·05653	1·44252	0·07543	89·395	9·71858	0·12958	1·54174	9·51569	113·259
787	el Scorpii	0·06572	0·05458	1·45779	0·08538	87·704	0·08942	9·98762	1·54061	9·51240	105·186
796	13 Herculis.....	0·06752	0·05682	1·44440	0·07682	89·077	9·77379	0·11252	1·53611	9·49927	113·627
803	B. F. 2244	0·06749	0·05532	1·44091	0·07494	89·573	9·67080	0·13440	1·53049	9·48347	115·900
816	B. F. 2272	0·06860	0·05458	1·44036	0·07516	89·572	9·65186	0·13138	1·51900	9·45304	118·214
822	* R. A. 16h. 38m. (19s). N. P. D. 53°. 14′	0·06855	0·05000	1·43354	0·07285	90·547	9·46449	0·14885	1·50510	9·41967	122·529
827	Groombridge 2376.....	0·06826	0·04714	1·43002	0·07184	91·082	9·38453	0·15311	1·49985	9·40811	124·041
851	Groombridge 2435.....	0·07330	0·04702	1·43081	0·07540	90·445	9·37125	0·12032	1·45806	9·33701	131·255
854	Piazzi XVII. 109.....	0·07482	0·05308	1·44068	0·07768	89·052	9·65562	0·09984	1·45326	9·33132	127·789
860	W. B. XVII. 636.....	0·07630	0·05388	1·45291	0·07983	87·803	9·99904	0·06974	1·43662	9·31548	117·737
862	Piazzi XVII. 196.....	0·07610	0·05018	1·43558	0·07758	89·543	9·49554	0·09917	1·43430	9·31374	132·993

No. 620, log. e = − 0·09348, log. f = 0·01995, log. g = 1·39800, log. h = − 0·09314, and l = 215″·805.
No. 750, log. e = 9·08207, log. f = − 9·00449, log. g = 0·30081, log. h = 9·08500, and l = 205″·055.

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No. in Star-Catalogue for 1867.	Star's Name.	Logarithms of				Value of	Logarithms of				Value of
		e	f	g	h	l	e′	f′	g′	h′	l′
						′					″
867	Oeltz. Arg. 17415	0·07678	0·05255	1·44006	0·07830	88·955	9·63407	0·09126	1·42894	9·31015	131·063
875	Piazzi XVII. 323	0·07858	0·05259	1·45603	0·07940	87·516	0·05998	0·07619	1·40597	9·30163	115·936
881	ψ^2 Draconis.....	0·07833	9·99303	1·37937	0·07837	96·769	9·06032	0·08292	1·40172	9·30118	141·604
889	Groombridge 2533.....	0·08081	0·04541	1·42918	0·08027	89·819	9·31869	0·06684	1·38010	9·30378	141·807
893	δ Ursæ Minoris.....	0·10546	8·88547	0·74707	0·10541	241·373	9·25115	0·05441	1·06688	9·00580	160·683
894	109 Herculis	0·08121	0·05249	1·43998	0·07993	88·546	9·63144	0·06855	1·36971	9·30766	136·836
902	Piazzi XVIII. 100.....	0·08195	0·05213	1·43911	0·08030	88·560	9·60412	0·06354	1·35963	9·31292	138·407
903	Piazzi XVIII. 116.....	0·08228	0·05224	1·43924	0·08042	88·510	9·60842	0·06176	1·35465	9·31600	138·703
906	Piazzi XVIII. 160.....	0·08391	0·04771	1·43186	0·08212	89·128	9·39375	0·04298	1·34027	9·32651	144·638
909	Bradley 2412	0·11397	9·81660	1·23634	0·11373	107·947	9·23376	0·00882	1·32988	9·33543	149·144
919	Bradley 2388	0·08559	0·05030	1·43512	0·08265	88·562	9·48869	0·03276	1·31151	9·35340	145·111
923	Piazzi XVIII. 318.....	0·08637	0·05189	1·43734	0·08261	88·239	9·55558	0·03107	1·29439	9·37216	144·635
926	B. F. 2591	0·08656	0·05364	1·44047	0·08188	87·926	9·65070	0·03958	1·28406	9·38420	142·296
931	Groombridge 2812.....	0·08914	0·04821	1·43143	0·08563	88·515	9·41095	9·99749	1·26939	9·40202	150·081
950	λ Ursæ Minoris.....	..	..	..	..	..	9·50501	9·85161	1·18134	9·51587	157·819
996	Groombridge 3548	0·31153	9·71814	1·16165	0·31117	77·121	9·74099	9·62315	0·96964	9·76056	160·137
1005	Bradley 2854	0·13478	0·03430	1·41232	0·13186	83·969	9·70398	9·63704	0·94025	9·78982	160·649
1007	Bradley 2841	0·10428	0·06032	1·43784	0·09566	85·443	9·69232	9·82673	0·93856	9·79148	155·030
1026	μ Piscis Australis	0·10362	0·06452	1·45507	0·06503	86·003	0·04696	0·22543	0·88093	9·84666	113·448
1049	Radcliffe 5776.....	0·40800	9·80026	1·22217	0·40776	46·307	9·90026	9·44478	0·81283	9·91060	155·020
1061	Piazzi XXII. 282	0·10677	0·07095	1·45231	0·06233	85·736	0·00264	0·24499	0·75719	9·96617	110·912
1072	Bradley 3094	0·11293	0·07190	1·44365	0·10437	82·954	9·88013	9·67771	0·72880	9·99934	147·738
1079	Bradley 3147	0·36258	0·01868	1·39701	0·36221	38·788	0·01473	9·32553	0·71107	0·02535	146·174
1081	Piazzi XXIII. 133.....	0·10315	0·07602	1·44892	0·07326	85·186	9·90789	0·15733	0·70813	0·03064	120·906

For No. 950, log. e = 0·46475, log. f = − 0·26854, log. g = − 1·52117, log. h = 0·46470, and l = 150″·460.

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SIDEREAL TIMES occupied by the TRANSIT of the SUN'S DIAMETER; and VERTICAL DIAMETERS of the SUN, corrected for Refraction and Parallax: compared with those of the Nautical Almanac.

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1867.	m s	s	s	′ ″	″	″
Jan. 4	2. 21·88	21·86	− 0·02	32. 37·26	36·40	− 0·86
15	2. 20·06	20·20	+ 0·14	32. 33·02	35·40	+ 2·38
31	2. 16·65	16·78	+ 0·13	32. 27·98	32·00	+ 4·02
Feb. 2	2. 16·16	16·32	+ 0·16	32. 28·64	31·40	+ 2·76
9	2. 14·65	14·72	+ 0·07	32. 26·56	29·00	+ 2·44
11	2. 14·20	14·28	+ 0·08	32. 23·95	28·40	+ 4·45
15	2. 13·45	13·42	− 0·03	32. 22·99	26·80	+ 3·81
16	2. 13·15	13·22	+ 0·07	32. 24·68	26·40	+ 1·72
20	2. 12·22	12·42	+ 0·20	32. 23·26	24·80	+ 1·54
23	2. 11·66	11·86	+ 0·20	32. 19·47	23·40	+ 3·93
25	2. 11·24	11·50	+ 0·26	32. 17·66	22·40	+ 4·74
Mar. 7	....	...	...	32. 15·03	17·40	+ 2·37
15	2. 9·16	9·32	+ 0·16	32. 9·43	13·20	+ 3·77
16	2. 9·10	9·24	+ 0·14	32. 13·70	12·80	− 0·90
27	2. 8·65	8·90	+ 0·25	32. 5·22	6·60	+ 1·38
28	2. 8·97	8·90	− 0·07	32. 5·63	6·00	+ 0·37
30	2. 8·82	8·92	+ 0·10	32. 3·32	5·00	+ 1·68
April 1	2. 8·99	8·96	− 0·03	32. 4·68	3·80	− 0·88
3	2. 8·93	9·04	+ 0·11	32. 2·61	2·80	+ 0·19
5	2. 9·02	9·14	+ 0·12	31. 57·63	1·60	+ 3·97
29	2. 11·73	11·74	+ 0·01	31. 50·90	49·00	− 1·90
May 3	2. 12·18	12·36	+ 0·18	31. 45·49	47·20	+ 1·71
4	....	...	...	31. 43·96	46·60	+ 2·64
6	2. 12·81	12·84	+ 0·03	31. 45·51	45·80	+ 0·29
7	2. 12·81	13·02	+ 0·21	31. 43·06	45·20	+ 2·14
9	2. 13·31	13·34	+ 0·03	31. 41·66	44·40	+ 2·74
18	2. 14·89	14·82	− 0·07	31. 39·04	40·80	+ 1·76
28	2. 16·01	16·28	+ 0·27	31. 37·65	37·40	− 0·25
29	2. 16·21	16·40	+ 0·19	31. 37·22	37·20	− 0·02
31	2. 16·60	16·64	+ 0·04	31. 34·43	36·60	+ 2·17
June 1	2. 16·73	16·76	+ 0·03	31. 38·11	36·20	− 1·91
4	2. 16·89	17·08	+ 0·19	31. 30·59	35·40	+ 4·81
8	2. 17·39	17·44	+ 0·05	31. 32·60	34·60	+ 2·00
10	2. 17·41	17·58	+ 0·17	31. 30·90	34·20	+ 3·30
11	2. 17·57	17·64	+ 0·07	31. 34·99	34·00	− 0·99
18	2. 17·70	17·92	+ 0·22	....	...	...
22	....	...	...	31. 29·70	32·40	+ 2·70
25	....	...	...	31. 31·51	32·20	+ 0·69
26	2. 17·71	17·82	+ 0·11	31. 29·75	32·00	+ 2·25
July 22	2. 14·96	15·00	+ 0·04	31. 33·67	33·60	− 0·07
24	2. 14·51	14·68	+ 0·17	31. 36·49	34·00	− 2·49

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1867.	m s	s	s	′ ″	″	″
Aug. 5	....	...	...	31. 35·65	36·80	+ 1·15
8	2. 11·90	12·10	+ 0·20	31. 36·65	37·60	+ 0·95
10	2. 11·68	11·78	+ 0·10	31. 37·34	38·20	+ 0·86
12	....	...	...	31. 40·01	39·00	− 1·01
13	2. 11·45	11·28	− 0·17	31. 43·95	39·40	− 4·55
14	2. 10·87	11·12	+ 0·25	31. 37·99	39·80	+ 1·81
20	2. 10·16	10·22	+ 0·06	31. 42·20	41·80	− 0·40
22	....	...	...	31. 40·54	42·60	+ 2·06
23	2. 9·81	9·82	+ 0·01	31. 42·90	43·00	+ 0·10
24	2. 9·50	9·68	+ 0·18	31. 40·79	43·40	+ 2·61
27	2. 9·15	9·32	+ 0·17	31. 42·55	44·60	+ 2·05
29	2. 8·92	9·12	+ 0·20	31. 46·02	45·60	− 0·42
31	2. 8·94	8·92	− 0·02	31. 52·66	46·40	− 6·26
Sept. 5	2. 8·34	8·52	+ 0·18	31. 45·62	48·80	+ 3·18
6	2. 8·41	8·44	+ 0·03	31. 47·77	49·40	+ 1·63
7	2. 8·13	8·38	+ 0·25	31. 48·87	49·80	+ 0·93
9	2. 8·15	8·28	+ 0·13	31. 49·05	50·80	+ 1·75
10	....	...	...	31. 49·76	51·40	+ 1·64
12	2. 8·14	8·18	+ 0·04	31. 49·26	52·40	+ 3·14
21	2. 7·99	8·14	+ 0·15	31. 56·56	57·00	+ 0·44
26	2. 8·28	8·32	+ 0·04	31. 56·68	59·80	+ 3·12
Oct. 1	2. 8·42	8·68	+ 0·26	31. 59·94	62·60	+ 2·66
3	2. 8·63	8·86	+ 0·23	32. 2·21	3·60	+ 1·39
5	....	...	...	32. 4·55	4·80	+ 0·25
16	2. 10·52	10·60	+ 0·08	32. 7·11	10·80	+ 3·69
18	2. 10·86	10·94	+ 0·08	32. 9·77	12·00	+ 2·23
19	2. 11·00	11·12	+ 0·12	32. 9·61	12·40	+ 2·79
23	2. 11·82	11·88	+ 0·06	32. 16·68	14·60	− 2·08
26	2. 12·34	12·50	+ 0·16	32. 18·60	16·20	− 2·40
28	....	...	...	32. 19·51	17·20	− 2·31
Nov. 1	2. 13·74	13·82	+ 0·08	32. 18·61	19·20	+ 0·59
2	2. 13·83	14·06	+ 0·23	32. 15·87	19·80	+ 3·93
5	2. 14·66	14·76	+ 0·10	32. 18·36	21·20	+ 2·84
6	2. 14·85	15·00	+ 0·15	32. 18·63	21·80	+ 3·17
7	2. 15·12	15·24	+ 0·12	32. 19·46	22·20	+ 2·74
8	2. 15·35	15·48	+ 0·13	32. 22·79	22·60	− 0·19
11	2. 16·07	16·20	+ 0·13	32. 20·42	24·00	+ 3·58
27	2. 19·71	19·78	+ 0·07	32. 26·90	30·20	+ 3·30
28	2. 19·68	19·98	+ 0·30	32. 26·72	30·60	+ 3·88
29	2. 20·12	20·18	+ 0·06	32. 28·68	30·80	+ 2·12
Dec. 3	2. 20·86	20·88	+ 0·02	32. 28·12	32·00	+ 3·88
9	2. 21·81	21·74	− 0·07	32. 34·42	33·80	− 0·62
18	....	...	...	32. 34·89	35·40	+ 0·51
31	....	...	...	....	...	...

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SIDEREAL TIMES occupied by the TRANSIT of the MOON'S DIAMETER; and VERTICAL DIAMETERS of the MOON, corrected for Refraction, Parallax, and Defect of Illumination: compared with those of the Nautical Almanac.

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1867.	m s	s	s	′ ″	″	″
Feb. 17	....	...	...	32. 18·01	18·94	+ 0·93
July 16	2. 8·12	8·28	+ 0·16	...	...	...
August 12	...	...	...	29. 38·01	36·90	− 1·11
Sept. 13	2. 7·66	7·80	+ 0·14	...	...	...
Nov. 11	2. 18·95	19·16	+ 0·21	...	...	...

VERTICAL DIAMETER of MERCURY, corrected for Refraction and Defect of Illumiuation: compared with that of the Nautical Almanac.

DAY.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1867.	″	″	″
August 22	5·00	7·00	+2·00

VERTICAL DIAMETERS of VENUS, corrected for Refraction, Parallax, and Defect of Illumination: compared with those of the Nautical Almanac.

DAY.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	DAY.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1867.	″	″	″	1867.	″	″	″
Jan. 28	36·76	32·90	−3·86	June 24	12·48	10·80	−1·68
				26	16·00	10·80	−5·20
Feb. 1	36·84	31·10	−5·74				
6	28·14	29·00	+0·86				
8	29·59	28·20	−1·39	July 29	7·99	10·00	+2·01
10	27·67	27·60	·· 0·07				
14	25·10	26·20	+1·10	August 9	8·02	9·80	+1·78
				12	12·78	9·80	−2·98
March 27	19·38	17·40	−1·98	13	10·69	9·80	−0·89
31	21·62	16·90	−4·72	21	9·19	9·80	+0·61
				22	10·06	9·70	−0·36
May 5	15·38	13·60	−1·78	26	9·61	9·60	−0·01
7	17·12	13·40	−3·72				
8	14·90	13·30	−1·60	Oct. 28	12·19	9·80	−2·39
9	15·82	13·20	−2·62				
31	13·75	12·00	−1·75	Nov. 2	8·72	9·80	+1·08
				7	9·26	9·80	+0·54
June 9	10·24	11·50	+1·26	27	10·71	10·20	−0·51
10	14·28	11·40	−2·88	28	11·18	10·20	−0·98
11	10·97	11·40	+0·43	29	9·99	10·20	+0·21

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the SUN—*concluded.*

Mean Solar Time of Transit of Center.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1867. d h m s	h m s		s	° ′ ″	″	″
Aug. 24. 0. 2. 16·4	10. 11. 27·71	27·68	— 0·03	78. 48. 24·00	26·20	+ 2·20
27. 0. 1. 27·6	10. 22. 28·46	28·22	— 0·24	79. 50. 43·69	44·20	+ 0·51
29. 0. 0. 52·6	10. 29. 46·47	46·69	+ 0·22	80. 33. 4·27	5·40	+ 1·13
31. 0. 0. 16·7	10. 37. 3·72	3·75	+ 0·03	81. 16. 2·26	2·80	+ 0·54
Sept. 4. 23. 58. 41·6	10. 55. 10·99	10·97	— 0·02	83. 5. 46·64	47·00	+ 0·36
5. 23. 58. 21·7	10. 58. 47·60	47·60	0·00	83. 28. 5·03	5·30	+ 0·27
6. 23. 58. 1·8	11. 2. 24·16	24·00	— 0·16	83. 50. 29·45	30·00	+ 0·55
8. 23. 57. 20·9	11. 9. 36·29	36·21	— 0·08	84. 35. 36·69	37·20	+ 0·51
9. 23. 57. 0·2	11. 13. 12·09	12·04	— 0·05	84. 58. 18·31	19·00	+ 0·69
11. 23. 56. 18·2	11. 20. 23·11	23·27	+ 0·16	85. 43. 58·20	57·70	— 0·50
12. 23. 55. 57·2	11. 23. 58·55	58·71	+ 0·16	....	...	...
19. 23. 53. 29·0	11. 49. 5·83	5·84	+ 0·01	88. 49. 6·16	5·60	— 0·56
20. 23. 53. 8·1	11. 52. 41·39	41·29	— 0·10	89. 12. 26·19	26·20	+ 0·01
23. 23. 52. 5·6	12. 3. 28·36	28·32	— 0·04	90. 22. 32·75	36·00	+ 3·25
25. 23. 51. 24·6	12. 10. 40·30	40·41	+ 0·11	91. 9. 25·88	25·70	— 0·18
26. 23. 51. 4·3	12. 14. 16·56	16·73	+ 0·17	....	...	...
27. 23. 50. 44·6	12. 17. 53·34	53·25	— 0·09	91. 56. 14·75	14·70	— 0·05
30. 23. 49. 46·0	12. 28. 44·27	44·23	— 0·04	93. 6. 21·35	20·40	— 0·95
Oct. 2. 23. 49. 8·2	12. 35. 59·47	59·56	+ 0·09	93. 52. 53·89	54·70	+ 0·81
4. 23. 48. 31·9	12. 43. 16·13	16·15	+ 0·02	94. 39. 17·27	17·90	+ 0·63
15. 23. 45. 40·9	13. 23. 46·74	46·76	+ 0·02	98. 48. 56·24	57·80	+ 1·56
17. 23. 45. 16·6	13. 31. 15·47	15·47	0·00	99. 32. 58·02	58·50	+ 0·48
18. 23. 45. 5·4	13. 35. 0·78	0·76	— 0·02	99. 54. 44·77	46·70	+ 1·93
22. 23. 44. 27·0	13. 50. 8·53	8·54	+ 0·01	101. 20. 32·17	29·70	— 2·47
25. 23. 44. 5·7	14. 1. 36·82	36·71	— 0·11	102. 23. 2·96	1·30	— 1·66
27. 23. 43. 54·8	....	....	....	103. 3. 46·61	46·00	— 0·61
31. 23. 43. 42·7	14. 24. 53·13	53·15	+ 0·02	104. 22. 43·65	45·00	+ 1·35
Nov. 1. 23. 43. 41·8	14. 28. 48·73	48·59	— 0·14	104. 41. 56·53	55·90	— 0·63
4. 23. 43. 43·1	14. 40. 39·76	39·69	— 0·07	105. 38. 0·97	1·00	+ 0·03
5. 23. 43. 45·2	14. 44. 38·37	38·33	— 0·04	105. 56. 9·88	12·10	+ 2·22
6. 23. 43. 48·0	14. 48. 37·69	37·79	+ 0·10	106. 14. 6·84	7·10	+ 0·26
7. 23. 43. 51·8	14. 52. 38·08	38·07	— 0·01	106. 31. 44·01	45·70	+ 1·69
10. 23. 44. 7·8	15. 4. 43·85	43·95	+ 0·10	107. 22. 59·48	59·10	— 0·38
26. 23. 47. 42·5	16. 11. 23·94	23·91	— 0·03	111. 6. 32·03	32·50	+ 0·47
27. 23. 48. 2·6	16. 15. 40·66	40·69	+ 0·03	111. 17. 24·43	23·20	— 1·23
28. 23. 48. 23·4	16. 19. 58·09	58·17	+ 0·08	111. 27. 48·11	49·80	+ 1·69
Dec. 2. 23. 49. 53·3	16. 37. 14·52	14·64	+ 0·12	112. 5. 28·18	28·30	+ 0·12
4. 23. 50. 41·6	16. 45. (56·03)	56·47	(+ 0·44)	112. 21. (46·63)	44·80	(— 1·83)
8. 23. 52. 25·6	17. 3. 26·50	26·36	— 0·14	112. 49. 2·00	2·00	0·00
17. 23. 56. 40·9	....	....	....	113. 23. 50·53	51·70	+ 1·17
22. 23. 59. 10·5	18. 5. 24·37	24·46	+ 0·09	....	...	...
31. 0. 3. 7·9	18. 40. 54·87	54·90	+ 0·03	113. 7. 12·99	14·40	+ 1·41

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the MOON.

Jan. 11. 4. 23. 25·6	23. 46. 15·16	15·09	— 0·07	91. 33. 43·60	41·90	— 1·70
12. 5. 11. 29·3	0. 38. 23·25	23·23	— 0·02	87. 14. 33·54	32·90	— 0·64
13. 6. 1. 12·8	1. 32. 11·46	11·48	+ 0·02	82. 58. 7·81	6·40	— 1·41
14. 6. 53. 19·9	2. 28. 23·70	23·87	+ 0·17	78. 59. 17·78	17·80	+ 0·02
15. 7. 48. 22·7	3. 27. 32·14	32·20	+ 0·06	75. 35. 27·17	25·60	— 1·57
18. 10. 48. 16·7	6. 39. 45·34	45·44	+ 0·10	71. 47. 29·80	31·80	+ 2·00
19. 11. 49. 1·1	7. 44. 36·27	36·50	+ 0·23	73. 11. 28·82	29·20	+ 0·38
Feb. 10. 4. 49. 53·8	2. 11. 4·08	4·02	— 0·06	80. 21. 18·79	20·30	+ 1·51
11. 5. 42. 47·9	3. 8. 3·70	3·73	+ 0·03	76. 48. 28·65	28·60	— 0·05

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the MOON—*continued.*

Mean Solar Time of Transit of Center.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
Feb. 14. 8. 34. 18·4	6. 11. 52·03	51·86	− 0·17	71. 43. 37·80	38·20	+ 0·40
15. 9. 33. 23·3	7. 15. 3·21	3·12	− 0·09	72. 28. 1·31	0·50	− 0·81
17. 11. 31. 25·0	9. 17. 20·76	20·93	+ 0·17	77. 25. 7·48	7·90	+ 0·42
22. 15. 34. 21·5	13. 44. 36·52	36·74	+ 0·22	97. 42. 27·59	26·80	− 0·79
23. 16. 20. 7·1	14. 34. 26·19	26·35	+ 0·16	101. 8. 25·68	28·10	+ 2·42
24. 17. 5. 52·9	15. 24. 16·02	16·20	+ 0·18	103. 59. 44·69	46·40	+ 1·71
March 15. 8. 22. 45·7	7. 54. 37·45	37·42	− 0·03	73. 37. 25·48	25·80	+ 0·32
16. 9. 17. 54·3	8. 53. 51·64	51·67	+ 0·03	76. 9. 48·60	51·80	+ 3·20
25. 16. 31. 19·8	16. 43. 57·25	57·37	+ 0·12	....	...	...
27. 18. 5. 51·4	18. 26. 37·54	37·55	+ 0·01	108. 10. 14·97	16·00	+ 1·03
April 11. 6. 18. 38·0	....	....	....	72. 59. 47·36	47·00	− 0·36
12. 7. 13. 52·2	8. 35. 56·06	56·22	+ 0·16	75. 13. 33·81	34·30	+ 0·49
14. 8. 57. 14·5	10. 27. 28·39	28·52	+ 0·13	82. 1. 24·07	22·60	− 1·47
16. 10. 33. 2·5	12. 11. 25·26	25·43	+ 0·17	90. 17. 49·17	49·80	+ 0·63
17. 11. 19. 24·5	13. 1. 51·47	51·52	+ 0·05	94. 25. 4·01	4·50	+ 0·49
27. 19. 7. 48·4	21. 30. 57·78	58·33	+ 0·55	101. 53. 24·71	23·80	− 0·91
May 11. 6. 55. 13·3	10. 11. 34·15	34·11	− 0·04	80. 42. 26·24	26·60	+ 0·36
17. 11. 33. 48·1	15. 14. 33·99	34·22	+ 0·23	103. 34. 27·05	29·20	+ 2·15
18. 12. 20. 15·1	16. 5. 5·22	5·33	+ 0·11	105. 58. 16·12	16·00	− 0·12
21. 14. 42. 4·2	....	....	....	108. 22. 11·82	14·60	+ 2·78
22. 15. 29. 15·3	19. 30. 22·69	23·10	+ 0·41	107. 27. 43·55	44·50	+ 0·95
23. 16. 16. 0·6	20. 21. 12·26	12·58	+ 0·32	105. 44. 12·51	14·40	+ 1·89
26. 18. 34. 39·5	....	....	....	96. 25. 50·14	50·20	+ 0·06
June 9. 6. 29. 37·7	11. 40. 14·40	14·42	+ 0·02	87. 20. 46·01	47·00	+ 0·99
10. 7. 16. 6·7	12. 30. 47·64	47·64	0·00	91. 34. 10·44	12·50	+ 2·06
11. 8. 1. 32·1	13. 20. 17·02	16·98	− 0·04	95. 37. 5·41	7·20	+ 1·79
14. 10. 17. 45·7	15. 48. 42·71	42·84	+ 0·13	105. 13. 28·36	28·20	− 0·16
16. 11. 51. 29·1	17. 30. 34·64	34·77	+ 0·13	108. 17. 47·65	47·20	− 0·45
21. 15. 45. 36·3	21. 45. 3·04	3·49	+ 0·45	101. 28. 46·27	47·90	+ 1·63
24. 18. 3. 18·1	0. 14. 57·40	57·76	+ 0·36	89. 55. 4·52	4·20	− 0·32
26. 19. 42. 2·5	2. 1. 50·89	51·30	+ 0·41	81. 20. 47·81	47·40	− 0·41
July 10. 7. 30. 6·2	14. 43. 6·12	6·19	+ 0·07	101. 24. 28·36	28·90	+ 0·54
12. 9. 1. 55·1	16. 23. 3·24	3·33	+ 0·09	106. 29. 56·73	54·50	− 2·23
13. 9. 48. 44·0	17. 13. 56·36	56·69	+ 0·33	107. 56. 20·83	21·80	+ 0·97
14. 10. 36. 3·4	18. 5. 20·10	20·29	+ 0·19	108. 32. 49·39	50·20	+ 0·81
16. 12. 10. 56·9	19. 48. 22·25	22·47	+ 0·22	107. 10. 7·76	5·40	− 2·36
18. 13. 44. 7·7	....	....	....	102. 34. 41·52	41·20	− 0·32
24. 18. 26. 43·7	2. 36. 43·29	43·88	+ 0·59	79. 7. 44·49	45·40	+ 0·91
Aug. 6. 5. 25. 45·1	14. 24. 51·58	51·70	+ 0·12	100. 0. 6·77	8·40	+ 1·63
8. 6. 58. 14·2	16. 5. 29·03	29·02	− 0·01	105. 39. 9·63	10·20	+ 0·57
9. 7. 44. 56·9	16. 56. 15·92	15·98	+ 0·06	107. 23. 46·69	45·90	− 0·79
10. 8. 32. 5·6	17. 47. 28·91	29·08	+ 0·17	108. 19. 29·13	29·00	− 0·13
12. 10. 7. 2·3	19. 30. 34·30	34·57	+ 0·27	107. 36. 12·43	10·20	− 2·23
13. 10. 54. 18·9	20. 21. 55·23	55·61	+ 0·38	105. 58. 10·75	6·30	− 4·45
16. 13. 13. 38·1	22. 53. 27·06	27·53	+ 0·47	96. 51. 27·45	27·10	− 0·35
18. 14. 46. 15·9	0. 34. 13·15	13·59	+ 0·44	88. 38. 58·66	56·10	− 2·56
20. 16. 23. 18·0	2. 19. 24·25	24·93	+ 0·68	80. 26. 20·96	19·20	− 1·76
21. 17. 15. 0·2	3. 15. 11·59	11·89	+ 0·30	76. 53. 46·39	46·10	− 0·29
Sept. 4. 4. 51. 54·6	15. 45. 15·60	15·94	+ 0·34	104. 39. 44·12	44·30	+ 0·18
5. 5. 39. 1·4	16. 36. 26·68	26·96	+ 0·28	106. 44. 21·03	21·10	+ 0·07
6. 6. 26. 18·2	17. 27. 47·85	47·99	+ 0·14	....	...	...
7. 7. 13. 43·4	18. 19. 17·31	17·42	+ 0·11	108. 25. 0·38	0·00	− 0·38
10. 9. 35. 29·4	20. 53. 16·34	16·56	+ 0·22	104. 32. 56·02	56·30	+ 0·28
12. 11. 8. 49·9	22. 34. 45·25	45·62	+ 0·37	98. 15. 19·56	20·00	+ 0·44
13. 11. 54. 30·6	23. 25. 30·18	30·36	+ 0·18	94. 19. 49·30	47·00	− 2·30
14. 12. 42. 39·4	0. 16. 43·30	43·72	+ 0·42	90. 6. 39·44	38·40	− 1·04

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of MARS—*concluded.*

Mean Solar Time of Transit of Center.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
Feb. 14. 9. 12. 43·4	6. 50. 23·24	23·23	— 0·01	63. 16. 6·83	7·30	+ 0·47
20. 8. 48. 49·2	6. 50. 4·46	4·34	— 0·12	63. 25. 33·31	33·40	+ 0·09
23. 8. 37. 35·3	6. 50. 38·35	38·36	+ 0·01	63. 31. 13·95	15·40	+ 1·45
28. 8. 19. 52·1	6. 52. 35·05	34·92	— 0·13	63. 42. 1·41	2·30	+ 0·89
Mar. 2. 8. 13. 6·4	6. 53. 41·36	41·36	0·00	63. 46. 46·07	47·00	+ 0·93
5. 8. 3. 18·0	6. 55. 41·01	40·98	— 0·03	63. 54. 21·02	21·20	+ 0·18
6. 8. 0. 7·0	6. 56. 25·99	25·97	— 0·02	63. 56. 58·97	59·90	+ 0·93
15. 7. 33. 12·0	7. 4. 55·55	55·52	— 0·03	64. 23. 33·85	37·60	+ 3·75
21. 7. 16. 46·3	7. 12. 6·44	6·49	+ 0·05	64. 44. 22·95	22·70	— 0·25
26. 7. 3. 51·4	7. 18. 52·16	52·17	+ 0·01	65. 3. 47·72	43·50	— 4·22
28. 6. 58. 52·0	7. 21. 45·13	45·03	— 0·10	65. 12. 1·31	1·50	+ 0·19
29. 6. 56. 24·3	7. 23. 13·58	13·58	0·00	65. 16. 18·67	18·10	— 0·57
April 9. 6. 30. 44·0	7. 40. 51·06	50·92	— 0·14	66. 9. 16·27	15·70	— 0·57

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CERES ①.

May	7. 13. 1. 11·9	16. 2. 46·65	45·47	— 1·18	103. 34. 21·70	8·80	—12·90
	8. 12. 56. 23·8	16. 1. 54·32	53·22	— 1·10	103. 34. 32·56	19·00	—13·56
	18. 11. 58. 37·4 P	15. 52. 44·30	43·07	— 1·23	103. 37. 61·20	47·80	—13·40
	22. 11. 39. 8·4 P	15. 48. 58·03	56·85	— 1·18	103. 40. 31·60	18·10	—13·50
	24. 11. 29. 23·4 P	15. 47. 5·30	4·33	— 0·97	103. 41. 63·30	51·00	—12·30
	28. 11. 9. 59·4 P	15. 43. 23·94	22·93	— 1·01	103. 45. 47·20	33·30	—13·90
	29. 11. 5. 9·4 P	15. 42. 29·62	28·68	— 0·94	103. 46. 50·70	37·20	—13·50
	31. 10. 55. 31·4 P	15. 40. 42·85	41·91	— 0·94	103. 49. 9·90	55·80	—14·10
June	1. 10. 50. 42·4 P	15. 39. 50·52	49·51	— 1·01	103. 50. 24·50	10·40	—14·10
	3. 10. 50. 27·5	15. 38. 7·76	6·62	— 1·14	103. 52. 64·36	50·70	—13·66
	4. 10. 45. 41·7	15. 37. 17·76	16·56	— 1·20	103. 54. 32·11	16·80	—15·31
	10. 10. 17. 26·8	15. 32. 37·51	36·38	— 1·13	104. 4. 33·37	18·50	—14·87
	11. 10. 12. 48·2	15. 31. 54·67	53·42	— 1·25	104. 6. 27·40	13·30	—14·10

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PALLAS ②.

May	3. 12. 45. 25·4 P	15. 40. 31·99	32·58	+ 0·59	65. 40. 58·00	58·70	+ 0·70
	4. 12. 49. 59 6	15. 39. 42·78	43·44	+ 0·66	65. 31. 32·40	33·00	+ 0·60
	6. 12. 40. 29·1	15. 38. 3·87	4·52	+ 0·65	65. 13. 52·85	51·90	— 0·95
	7. 12. 35. 43·3	15. 37. 13·79	14·55	+ 0·76	65. 5. 32·84	33·50	+ 0·66
	18. 11. 33. 56·4 P	15. 27. 59·22	59·99	+ 0·77	63. 58. 20·50	21·90	+ 1·40
	22. 11. 14. 57·4 P	15. 24. 43·69	44·37	+ 0·68	63. 44. 56·10	56·40	+ 0·30
	23. 11. 10. 14·4 P	15. 23. 55·95	56·65	+ 0·70	63. 42. 29·70	29·40	— 0·30
	24. 11. 5. 31·4 P	15. 23. 8·78	9·48	+ 0·70	63. 40. 24·30	23·90	— 0·40
	27. 10. 51. 26·4 P	15. 20. 51·00	51·81	+ 0·81	63. 36. 12·60	14·40	+ 1·80
	28. 10. 46. 45·4 P	15. 20. 6·60	7·35	+ 0·75	63. 35. 32·10	33·10	+ 1·00
	29. 10. 42. 6·4 P	15. 19. 22·93	23·66	+ 0·73	63. 35. 11·60	12·20	+ 0·60
	31. 10. 32. 49·4 P	15. 17. 58·03	58·82	+ 0·79	63. 35. 30·80	31·00	+ 0·20
June	1. 10. 28. 12·4 P	15. 17. 16·88	17·73	+ 0·85	68. 36. 10·60	11·10	+ 0·50
	3. 10. 28. 20·9	15. 15. 57·51	58·15	+ 0·64	63. 38. 26·74	26·90	+ 0·16
	4. 10. 23. 46·9	15. 15. 19·29	19·98	+ 0·69	63. 40. 4·14	3·40	— 0·74
	11. 9. 52. 19·5	15. 11. 22·68	23·28	+ 0·60	63. 59. 36·29	37·50	+ 1·21

The letter P signifies that the observation was made at the Imperial Observatory of Paris; the time given is Mean Solar Time of Greenwich.

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of JUNO ③.

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N.P.D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
Feb. 23. 12. 41. 2·4 P	11. 4. 6·34	4·59	− 1·75	87. 27. 27·60	24·60	− 3·00
28. 12. 17. 20·4 P	11. 0. 3·18	1·67	− 1·51	....	...	...
Mar. 1. 12. 12. 35·4 P	10. 59. 14·18	12·55	− 1·63	86. 28. 35·10	34·00	− 1·10
2. 12. 7. 50·4 P	10. 58. 24·81	23·41	− 1·40	86. 18. 39·60	38·20	− 1·40
4. 11. 57. 21·4 P	10. 56. 46·85	45·24	− 1·61	85. 58. 46·10	45·20	− 0·90
16. 11. 11. 11·3	10. 47. 27·24	25·58	− 1·66	84. 2. 30·71	27·90	− 2·81
26. 10. 16. 12·4 P	10. 41. 5·04	3·58	− 1·46	82. 36. 24·00	20·20	− 3·80
27. 10. 11. 44·4 P	10. 40. 32·86	31·24	− 1·62	82. 28. 33·30	30·10	− 3·20
29. 10. 2. 50·4 P	10. 39. 31·52	30·14	− 1·38	82. 13. 22·70	18·80	− 3·90
30. 9. 58. 26·4 P	10. 39. 3·14	1·46	− 1·68	....	...	...
April 5. 9. 41. 45·7	10. 36. 37·97	36·45	− 1·52	81. 25. 32·43	30·20	− 2·23

RIGHT ASCENSION and NORTH POLAR DISTANCE of VESTA ④.

Dec. 24. 11. 57. 16·4 P	6. 18. 45·17	45·07	− 0·10	68. 34. 38·50	40·50	+ 2·00

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ASTRÆA ⑤.

Jan. 11. 12. 59. 54·8	8. 24. 9·22	15·59	+ 6·37	74. 37. 19·92	33·50	+13·58
25. 11. 43. 18·4 P	8. 11. 52·32	58·83	+ 6·51	73. 10. 47·90	60·80	+12·90
Feb. 6. 10. 55. 23·2	8. 1. 47·49	53·91	+ 6·42	71. 53. 31·18	41·70	+10·52

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of METIS ⑨.

June 26. 12. 23. 31·4 P	18. 51. 28·32	28·37	+ 0·05	117. 32. 23·30	28·50	+ 5·20
28. 12. 13. 31·4 P	18. 49. 20·09	19·93	− 0·16	117. 38. 58·70	61·70	+ 3·00
29. 12. 8. 31·4 P	18. 48. 15·28	15·06	− 0·22	117. 42. 15·10	17·70	+ 2·60

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HYGEIA ⑩.

July 24. 12. 16. 32·4 P	20. 34. 52·28	52·15	− 0·13	106. 50. 19·30	21·20	+ 1·90
29. 11. 52. 49·4 P	20. 30. 47·67	47·76	+ 0·09	106. 59. 30·90	33·10	+ 2·20
30. 11. 48. 4·4 P	20. 29. 58·69	58·87	+ 0·18	107. 1. 24·20	24·20	0·00
Aug. 2. 11. 43. 10·5	20. 27. 32·76	32·87	+ 0·11	107. 6. 52·93	56·25	+ 3·32
9. 11. 10. 12·6	20. 22. 5·35	5·31	− 0·04	107. 19. 21·23	20·59	− 0·64
10. 11. 5. 32·2	20. 21. 20·75	20·66	− 0·09	107. 21. 1·20	1·57	+ 0·37
12. 10. 56. 13·3	20. 19. 53·39	53·41	+ 0·02	107. 24. 18·05	18·38	+ 0·33

The letter P signifies that the observation was made at the Imperial Observatory of Paris; the time given is Mean Solar Time of Greenwich.

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CALLIOPE (22).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
Dec. 6. 12. 56. 48·9	5. 58. 9·01	12·64	+ 3·63	59. 58. 28·13	27·89	— 0·24
18. 11. 47. 49·4 P	5. 45. 37·76	41·20	+ 3·44	58. 55. 38·30	37·70	— 0·60
24. 11. 17. 46·4 P	5. 39. 9·04	12·53	+ 3·49	58. 30. 4·80	5·50	+ 0·70

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of THALIA (23).

May	22. 12. 36. 42·4 P	16. 46. 41·62	40·11	— 1·51	112. 45. 27·90	19·10	— 8·80
	23. 12. 31. 45·4 P	16. 45. 41·03	39·47	— 1·56	112. 46. 48·60	39·80	— 8·80
	24. 12. 26. 48·4 P	16. 44. 40·00	38·30	— 1·70	112. 47. 65·80	58·30	— 7·50
	27. 12. 11. 56·4 P	16. 41. 34·42	32·67	— 1·75	112. 51. 46·40	39·80	— 6·60
	28. 12. 6. 58·4 P	16. 40. 31·95	30·33	— 1·62	112. 52. 55·60	48·90	— 6·70
	29. 12. 1. 59·4 P	16. 39. 29·46	27·77	— 1·69	112. 54. 23·50	16·90	— 6·60
	31. 11. 52. 3·4 P	16. 37. 24·37	22·54	— 1·83	112. 56. 10·20	2·80	— 7·40
June	1. 11. 47. 4·4 P	16. 36. 21·60	20·01	— 1·59	112. 57. 11·20	3·00	— 8·20
	10. 11. 11. 51·9	16. 27. 11·52	9·82	— 1·70	113. 4. 45·80	38·79	— 7·01
	11. 11. 6. 57·6	16. 26. 13·00	11·34	— 1·66	113. 5. 26·85	21·26	— 5·59

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of THEMIS (24).

Sept.	28. 12. 12. 48·1	0. 41. 58·76	58·46	— 0·30	86. 2. 6·50	10·13	+ 3·63
	30. 12. 3. 29·5	0. 40. 31·78	31·03	— 0·75	86. 11. 6·40	7·56	+ 1·16

RIGHT ASCENSION and NORTH POLAR DISTANCE of EUTERPE (27).

Sept.	5. 12. 15. 31·8	23. 13. 62·25	59·04	— 3·21	97. 46. 55·55	74·65	+19·10

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of AMPHITRITE (29).

June	26. 11. 24. 9·4 P	17. 51. 56·15	54·74	— 1·41	123. 11. 15·90	17·80	+ 1·90
	28. 11. 14. 9·4 P	17. 49. 47·92	46·68	— 1·24	123. 9. 31·10	28·30	— 2·80
	29. 11. 9. 10·4 P	17. 48. 44·72	43·36	— 1·36	123. 8. 19·50	22·50	+ 3·00

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of URANIA (30).

Feb.	2. 12. 25. 7·4 P	9. 25. 19·70	17·73	— 1·97	75. 23. 57·80	49·70	— 8·10
	19. 11. 0. 58·4 P	9. 7. 58·91	56·82	— 2·09	74. 20. 22·90	15·80	— 7·10
	23. 10. 41. 40·4 P	9. 4. 25·38	...	...	...	...	...
Mar.	2. 10. 8. 41·4 P	8. 58. 55·87	...	...	73. 48. 58·00	...	...

The letter P signifies that the observation was made at the Imperial Observatory of Paris; the time given is Mean Solar Time of Greenwich.

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of EUPHROSYNE (31).

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
Jan. 11. 13. 25. 28·6	8. 49. 47·10	61·36	+ 14·26	28. 55. 9·16	55·08	+ 45·92
Feb. 6. 11. 5. 17·8	8. 11. 43·76	....	....	28. 40. 58·95	....	....

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of LEUCOTHEA (33).

Sept. 21. 11. 3. 52·4 P	23. 14. 36·74	39·41	+ 2·67	96. 2. 26·40	9·50	− 16·90
27. 10. 35. 54·4 P	23. 10. 13·35	15·75	+ 2·40	96. 18. 58·80	53·30	− 5·50

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ATALANTA (36).

April 26. 11. 15. 45·4 P	13. 43. 0·92	32·68	+ 1·76	117. 9. 31·80	51·40	+ 19·60
27. 11. 10. 51·4 P	13. 42. 3·13	4·90	+ 1·77	117. 6. 56·40	78·40	+ 22·00

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of FIDES (37).

June 26. 11. 52. 26·4 P	18. 20. 18·50	18·91	+ 0·41	118. 3. 21·90	33·50	+ 11·60
28. 11. 42. 34·4 P	18. 18. 17·57	18·10	+ 0·53	118. 4. 30·00	32·90	+ 2·90

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of LÆTITIA (39).

Aug. 10. 12. 58. 48·2	22. 14. 55·36	53·32	− 2·04	97. 29. 26·11	3·19	− 22·92
12. 12. 49. 37·6	22. 13. 36·33	34·32	− 2·01	97. 45. 56·35	33·66	− 22·69
13. 12. 45. 1·3	22. 12. 55·87	53·80	− 2·07	97. 53. 84·84	58·74	− 26·10
17. 12. 17. 9·4 P	22. 10. 8·41	6·46	− 1·95	98. 28. 56·20	32·40	− 23·80
19. 12. 7. 53·4 P	22. 8. 42·08	40·08	− 2·00	98. 46. 41·20	18·70	− 22·50
22. 11. 53. 54·4 P	22. 6. 30·65	28·53	− 2·12	99. 13. 44·70	22·00	− 22·70
23. 11. 49. 14·4 P	22. 5. 46·46	44·40	− 2·06	99. 22. 49·60	27·50	− 22·10
24. 11. 44. 35·4 P	22. 5. 2·28	0·27	− 2·01	99. 31. 58·20	34·10	− 24·10
27. 11. 30. 35·4 P	22. 2. 50·24	48·29	− 1·95	99. 59. 21·90	57·00	− 24·90
28. 11. 25. 56·4 P	22. 2. 6·60	4·64	− 1·96	100. 8. 28·70	3·90	− 24·80
Sept. 3. 11. 7. 26·8	21. 57. 52·90	51·12	− 1·78	101. 2. 29·05	4·56	− 24·49
5. 10. 58. 15·4	21. 56. 33·11	31·36	− 1·75	101. 19. 56·02	34·29	− 21·73
6. 10. 53. 40·8	21. 55. 54·30	52·57	− 1·73	101. 28. 34·33	11·33	− 23·00
7. 10. 49. 7·0	21. 55. 16·29	14·60	− 1·69	101. 36. 64·62	42·31	− 22·31

The letter P signifies that the observation was made at the Imperial Observatory of Paris; the time given is Mean Solar Time of Greenwich.

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of MNEMOSYNE (57)

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
Feb. 2. 11. 58. 35·4 P	8. 58. 44·06	45·04	+ 0·98	93. 35. 20·30	18·40	— 1·90
Mar. 1. 9. 54. 57·4 P	8. 41. 12·90	13·83	+ 0·93	90. 38. 19·60	20·40	+ 0·80

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ELPIS (58).

Mar.	15. 12. 7. 11·4	11. 39. 39·44	39·17	— 0·27	86. 48. 30·90	27·58	— 3·32
	16. 12. 2. 28·5	11. 38. 52·88	52·69	— 0·19	86. 40. 48·58	50·72	+ 2·14
	27. 11. 1. 41·4 P	11. 30. 37·94	37·70	— 0·24	85. 20. 7·80	2·60	— 5·20
April	1. 10. 38. 36·4 P	11. 27. 12·82	...	...	84. 46. 25·30	...	...
	3. 10. 29. 28·4 P	11. 25. 56·10	...	...	84. 33. 45·30	...	...

RIGHT ASCENSION and NORTH POLAR DISTANCE of ECHO (59).

Aug.	2. 11. 41. 47·0	20. 26. 9·08	6·57	— 2·51	103. 57. 157·71	45·09	—112·62

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ANGELINA (60).

Aug.	9. 12. 55. 28·0	22. 7. 38·02	37·65	— 0·37	101. 1. 1·30	7·66	+ 6·36
	19. 11. 58. 32·4 P	21. 59. 18·96	18·58	— 0·38	....	...	...
	23. 11. 39. 23·4 P	21. 55. 53·63	53·13	— 0·50	101. 59. 7·10	10·90	+ 3·80
	24. 11. 34. 36·4 P	21. 55. 2·22	1·90	— 0·32	102. 3. 16·90	21·60	+ 4·70
	27. 11. 20. 16·4 P	21. 52. 29·68	29·30	— 0·38	102. 15. 41·50	44·90	+ 3·40
	28. 11. 15. 30·4 P	21. 51. 39·30	39·07	— 0·23	102. 19. 44·90	48·70	+ 3·80

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CYBELE (65).

Feb.	23. 12. 12. 43·4 P	10. 35. 42·65	42·57	— 0·08	81. 20. 44·70	44·50	— 0·20
	28. 11. 49. 35·4 P	10. 32. 13·19	13·15	— 0·04	80. 55. 62·90	59·90	— 3·00
Mar.	1. 11. 44. 57·4 P	10. 31. 31·21	31·31	+ 0·10	80. 51. 5·00	4·30	— 0·70
	2. 11. 40. 19·4 P	10. 30. 49·42	49·46	+ 0·04	80. 46. 6·50	9·00	+ 2·50
	4. 11. 31. 5·4 P	10. 29. 26·28	26·37	+ 0·09	80. 36. 22·70	23·40	+ 0·70

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of LETO (66).

Oct.	21. 12. 0. 45·4 P	2. 9. 56·04	56·07	+ 0·03	80. 17. 55·90	0·70	—55·20
	22. 11. 55. 52·4 P	2. 8. 58·04	58·06	+ 0·02	80. 17. 111·30	57·00	—54·30
	23. 11. 50. 58·4 P	2. 7. 59·84	59·85	+ 0·01	80. 18. 109·40	42·80	—56·60
	25. 11. 41. 10·4 P	2. 6. 3·30	3·24	— 0·06	80. 20. 96·60	41·40	—55·20
Nov.	5. 10. 56. 55·0	1. 55. 42·18	42·38	+ 0·20	80. 28. 62·02	6·87	—55·15
	8. 10. 42. 33·3	1. 53. 7·81	7·79	— 0·02	80. 28. 108·10	53·59	—54·51

The letter P signifies that the observation was made at the Imperial Observatory of Paris; the time given is Mean Solar Time of Greenwich.

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HESPERIA (60).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
May 24. 11. 30. 17·4 P	15. 47. 59·84	77·80	+17·96	100. 4. 26·30	61·10	+34·80
27. 11. 16. 11·4 P	15. 45. 40·30	58·10	+17·80	99. 54. 33·60	68·60	+35·00
28. 11. 11. 29·4 P	15. 44. 54·42	72·22	+17·80	...	...	...
29. 11. 6. 47·4 P	15. 44. 8·91	26·73	+17·82	99. 48. 25·80	59·50	+33·70
31. 10. 57. 27·4 P	15. 42. 39·56	57·17	+17·61	99. 42. 37·40	72·60	+35·20
June 1. 10. 52. 47·4 P	15. 41. 55·56	73·16	+17·60	99. 39. 54·20	87·40	+33·20
3. 10. 52. 48·4	15. 40. 29·06	46·63	+17·57	99. 34. 35·72	74·07	+38·35

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of NIOBE (71).

Dec.	18. 10. 59. 24·4 P	4. 57. 5·17	4·20	− 0·97	39. 13. 51·40	20·50	−30·90
	24. 10. 28. 12·4 P	4. 49. 26·58	25·69	− 0·89	39. 53. 68·10	41·50	−26·60

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of DIANA (73).

Feb.	19. 11. 7. 25·4 P	9. 14. 27·32	20·77	− 6·55	70. 37. 44·60	5·30	−39·30
Mar.	1. 10. 19. 55·4 P	9. 6. 14·94	8·42	− 6·52	71. 6. 76·80	39·10	−37·70
	2. 10. 15. 19·4 P	9. 5. 34·62	...	...	71. 10. 48·90	...	...
	4. 10. 6. 13·4 P	9. 4. 20·38	...	...	71. 18. 12·80	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of EURYNOME (72).

Nov.	2. 12. 55. 42·6	3. 44. 59·71	73·53	+13·82	73. 41. 59·05	27·69	−31·36
	7. 12. 34. 8·0	3. 41. 4·31	18·00	+13·69	74. 14. 61·63	25·56	−36·07
	8. 12. 29. 21·8	3. 40. 13·83	27·92	+14·09	74. 21. 38·71	5·77	−32·94
	27. 10. 58. 13·8	3. 23. 45·48	58·96	+13·48	76. 19. 96·68	59·23	−37·45
	28. 10. 53. 31·0	3. 22. 58·45	71·92	+13·47	76. 25. 53·70	14·80	−38·90
Dec.	4. 10. 25. 41·9	3. 18. 44·08	...	...	76. 54. 1·77	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of SAPPHO (80).

Mar.	26. 12. 12. 13·4 P	12. 37. 25·46	17·54	− 7·92	101. 0. 72·90	28·50	−44·00
	27. 12. 7. 23·4 P	12. 36. 31·33	23·29	− 8·04	100. 52. 80·10	36·20	−43·90
	30. 11. 52. 52·4 P	12. 33. 47·48	39·37	− 8·11	100. 28. 61·60	19·00	−42·60
April	1. 11. 43. 11·4 P	12. 31. 57·77	49·81	− 7·96	100. 11. 84·60	39·90	−44·70
	9. 11. 13. 54·4	12. 24. 48·04	40·52	− 7·52	99. 2. 91·64	49·76	−41·88
	23. 9. 58. 49·4 P	12. 14. 3·21	...	...	97. 5. 8·30	...	..
	24. 9. 54. 15·4 P	12. 13. 24·80	...	...	96. 57. 4·70	...	...

The letter P signifies that the observation was made at the Imperial Observatory of Paris; the time given is Mean Solar Time of Greenwich.

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of SATURN—*concluded.*

Mean Solar Time of Transit of Center.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
May 23. 11. 8. 15·6	15. 12. 36·61	36·43	— 0·18	105. 23. 21·72	29·30	+ 7·58
24. 11. 4. 2·5	15. 12. 19·41	19·08	— 0·33	....	....	....
27. 10. 51. 23·4	15. 11. 27·94	27·73	— 0·21	105. 19. 14·33	21·20	+ 6·87
28. 10. 47. 10·8	15. 11. 11·14	10·88	— 0·26	105. 18. 14·64	20·90	+ 6·26
29. 10. 42. 58·4	15. 10. 54·59	54·18	— 0·41	105. 17. 16·44	21·40	+ 4·96
30. 10. 38. 45·8	15. 10. 37·90	37·63	— 0·27	105. 16. 16·30	22·60	+ 6·30
June 1. 10. 30. 21·5	15. 10. 5·31	5·02	— 0·29	105. 14. 20·65	27·70	+ 7·05
3. 10. 21. 57·9	15. 9. 33·45	33·14	— 0·31	105. 12. 31·05	36·30	+ 5·25
4. 10. 17. 46·4	15. 9. 17·86	17·49	— 0·37	105. 11. 35·53	42·00	+ 6·47
10. 9. 52. 41·8	15. 7. 48·47	48·16	— 0·31	105. 6. 31·19	38·50	+ 7·31
11. 9. 48. 32·0	15. 7. 34·55	34·09	— 0·46	105. 5. 46·36	51·80	+ 5·44
22. 9. 3. 0·3	15. 5. 17·48	17·23	— 0·25	104. 58. 36·18	42·30	+ 6·12
25. 8. 50. 41·7	15. 4. 46·52	46·13	— 0·39	104. 57. 8·20	13·80	+ 5·60
26. 8. 46. 36·2	15. 4. 36·86	36·40	— 0·46	104. 56. 40·36	47·30	+ 6·94

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of URANUS.

Jan.	1. 11. 42. 13·7	6. 26. 49·66	65·77	+ 16·11	66. 22. 12·30	12·10	— 0·20
	11. 11. 1. 4·7	....	....	....	66. 20. 60·84	59·50	— 1·34
	18. 10. 32. 20·4	6. 23. 46·42	62·31	+ 15·89	66. 20. 16·75	15·00	— 1·75
	25. 10. 3. 41·4	6. 22. 38·58	54·33	+ 15·75	....	....	....
	28. 9. 51. 26·4	6. 22. 11·19	27·12	+ 15·93	66. 19. 23·88	21·70	— 2·18
Feb.	2. 9. 31. 4·7	6. 21. 28·97	44·74	+ 15·77	66. 18. 61·11	59·70	— 1·41
	14. 8. 42. 30·2	....	...	....	66. 18. 23·22	19·70	— 3·52
	20. 8. 18. 23·5	6. 19. 33·77	49·33	+ 15·56	66. 18. 9·33	6·40	— 2·93
	23. 8. 6. 22·9	6. 19. 20·88	36·47	+ 15·59	66. 18. 3·95	1·50	— 2·45
Mar.	1. 7. 42. 28·0	6. 19. 1·33	16·67	+ 15·34	66. 17. 56·57	54·60	— 1·97
	4. 7. 30. 33·4	6. 18. 54·40	69·83	+ 15·43	66. 17. 56·06	52·70	— 3·36
	5. 7. 26. 35·6	6. 18. 52·57	68·01	+ 15·44	66. 17. 54·95	52·30	— 2·65
	7. 7. 18. 41·0	6. 18. 49·73	65·07	+ 15·34	66. 17. 55·07	51·80	— 3·27
	15. 6. 47. 11·2	6. 18. 47·21	62·65	+ 15·44	66. 17. 57·78	54·50	— 3·28
Nov.	28. 14. 23. 6·4	6. 53. 8·23	23·69	+ 15·46	66. 44. 21·27	30·20	+ 8·93
Dec.	3. 14. 2. 42·9	6. 52. 24·22	39·69	+ 15·47	66. 43. 19·73	28·60	+ 8·87
	10. 13. 34. 4·3	6. 51. 16·82	32·48	+ 15·66	66. 41. 48·56	57·40	+ 8·84
	18. 13. 1. 14·1	6. 49. 53·59	69·28	+ 15·69	66. 40. 1·19	8·80	+ 7·61
	24. 12. 36. 33·1	6. 48. 47·93	63·70	+ 15·77	66. 38. 38·23	46·30	+ 8·07

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of NEPTUNE.

Jan.	11. 5. 16. 48·6	0. 39. 46·83	48·81	+ 1·98	87. 24. 42·68	28·60	— 14·08
Aug.	27. 14. 33. 8·2	0. 56. 32·27	35·06	+ 2·79	85. 42. 76·46	58·70	— 17·76
Sept.	6. 13. 53. 2·6	0. 55. 45·56	48·34	+ 2·78	85. 48. 32·95	15·90	— 17·05
	10. 13. 36. 58·3	0. 55. 24·88	27·63	+ 2·75	85. 50. 49·75	34·10	— 15·65
	13. 13. 24. 54·6	0. 55. 8·82	11·44	+ 2·62	85. 52. 37·48	21·40	— 16·08
	14. 13. 20. 53·1	0. 55. 3·24	5·94	+ 2·70	85. 52. 75·38	57·60	— 17·78
	18. 13. 4. 47·2	0. 54. 40·84	43·40	+ 2·56	85. 55. 41·48	25·40	— 16·08
	20. 12. 56. 43·8	0. 54. 29·26	31·86	+ 2·60	85. 56. 55·52	40·80	— 14·72
	24. 12. 40. 36·6	0. 54. 5·65	8·30	+ 2·65	85. 59. 28·36	13·80	— 14·56
	25. 12. 36. 34·9	0. 53. 59·79	62·33	+ 2·54	85. 59. 67·58	52·40	— 15·18

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RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of NEPTUNE—*concluded.*

Mean Solar Time of Transit of Center.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1867. d h m s	h m s	s	s	° ′ ″	″	″
Sept. 28. 12. 24. 29·1	0. 53. 41·63	44·22	+ 2·59	86. 1. 65·94	49·10	−16·84
30. 12. 16. 25·1	0. 53. 29·49	32·05	+ 2·56	86. 3. 22·97	7·10	−15·87
Oct. 1. 12. 12. 23·1	0. 53. 23·38	25·93	+ 2·55	86. 3. 62·09	46·30	−15·79
2. 12. 8. 22·9	0. 53. 17·19	19·80	+ 2·61	86. 4. 40·67	25·40	−15·27
3. 12. 4. 19·1	0. 53. 11·12	13·66	+ 2·54	86. 5. 19·25	4·60	−14·65
4. 12. 0. 17·0	0. 53. 4·96	7·52	+ 2·56	86. 5. 58·82	43·70	−15·12
8. 11. 44. 8·9	0. 52. 40·38	42·88	+ 2·50	86. 8. 35·25	20·00	−15·25
10. 11. 36. 4·7	....	....	....	86. 9. 54·17	37·80	−16·37
19. 10. 59. 47·0	0. 51. 33·23	35·77	+ 2·54	86. 15. 33·84	20·60	−13·24
26. 10. 31. 34·7	0. 50. 52·16	54·66	+ 2·50	86. 19. 48·07	34·60	−13·47
Nov. 1. 10. 8. 25·8	0. 50. 18·82	21·16	+ 2·34	86. 22. 73·23	58·80	−14·43
2. 10. 3. 24·6	0. 50. 13·36	15·77	+ 2·41	86. 23. 45·17	31·40	−13·77
5. 9. 51. 21·1	0. 49. 57·55	59·98	+ 2·43	86. 25. 20·10	6·60	−13·50
6. 9. 47. 20·1	0. 49. 52·47	54·84	+ 2·37	86. 25. 51·18	37·40	−13·78
7. 9. 43. 19·3	0. 49. 47·56	49·78	+ 2·22	86. 26. 20·95	7·70	−13·25
8. 9. 39. 18·4	0. 49. 42·49	44·79	+ 2·30	86. 26. 51·78	37·50	−14·28
11. 9. 27. 16·3	0. 49. 28·14	30·30	+ 2·16	86. 28. 15·89	3·60	−12·29
13. 9. 19. 15·0	0. 49. 18·58	21·02	+ 2·44	86. 28. 71·72	58·20	−13·52
19. 8. 55. 13·9	0. 48. 52·89	55·23	+ 2·34	86. 31. 41·41	27·90	−13·51
21. 8. 47. 14·3	0. 48. 45·08	47·37	+ 2·29	86. 32. 27·69	12·80	−14·89
23. 8. 39. 15·1	0. 48. 37·63	39·89	+ 2·26	86. 32. 68·66	55·20	−13·46
28. 8. 19. 18·6	0. 48. 20·70	23·01	+ 2·31	86. 34. 44·23	29·00	−15·23
Dec. 4. 7. 55. 26·5	0. 48. 3·98	6·31	+ 2·33	86. 35. 70·65	57·90	−12·75
7. 7. 43. 32·1	0. 47. 57·27	59·52	+ 2·25	86. 36. 46·15	32·00	−14·15
9. 7. 35. 36·3	0. 47. 53·35	55·57	+ 2·22	86. 36. 65·57	51·00	−14·57
12. 7. 33. 43·6	0. 47. 48·31	50·55	+ 2·24	86. 37. 27·48	13·50	−13·98
18. 7. 0. 1·4	0. 47. 41·59	43·80	+ 2·21	86. 37. 49·02	37·00	−12·02
24. 6. 36. 23·8	0. 47. 39·42	41·59	+ 2·17	86. 37. 45·47	31·30	−14·17

COMET II., 1867.

May	6. 12. 9. 16·6	15. 6. 46·26	....	....	92. 19. 49·95	....	....
	7. 12. 5. 7·2	15. 6. 32·72	....	....	92. 23. 31·52	....	....

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INVESTIGATION of the POSITION of the ECLIPTIC, from the OBSERVATIONS of the SUN.

Mean Tabular Errors of the Sun in R.A. and N.P.D.; and Errors in Ecliptic North Polar Distance, deduced from the Formula,

Error in Ecliptic North Polar Distance = R × Error of R.A. + S × Error of N.P.D.

Extent of Group.	Mean Day, 1867.	Error in R.A.	Number of Obs.	Error in N.P.D.	Number of Obs.	Error in Ecliptic N.P.D.
		s		"		"
January 4 to February 2	January 19	− 0·08	5	+ 1·14	4	+ 0·883
February 9 to February 25	February 17	− 0·10	7	+ 0·65	7	+ 0·102
March 7 to April 5	March 26	+ 0·01	9	− 0·07	10	− 0·005
April 29 to May 9	May 5	− 0·05	6	− 0·24	6	− 0·443
May 18 to June 1	May 27	− 0·03	7	− 0·43	6	− 0·497
June 4 to June 26	June 15	− 0·07	9	− 0·69	8	− 0·735
July 17 to July 31	July 24	+ 0·05	4	− 0·08	4	− 0·232
August 5 to August 31	August 19	+ 0·02	11	+ 0·93	13	+ 0·776
September 5 to September 28	September 16	0·00	13	+ 0·40	11	+ 0·368
October 1 to October 28	October 15	0·00	8	− 0·03	9	− 0·028
November 1 to November 29	November 12	0·00	10	+ 0·55	10	+ 0·530
December 3 to December 31	December 16	+ 0·03	4	+ 0·68	4	+ 0·660

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Equations formed by assuming the Error in Ecliptic North Polar Distance to be represented by the Formula,

$x \times \cos$ Sun's longitude $+ y \times \sin$ Sun's longitude $+ z$,

and altering the number of observations so as to make the assumed weights of opposite parts of the year equal:

Spring	$+ 0''.883 = + 0.4848 \times x - 0.8746 \times y + z$	Weight	5
	$+ 0''.102 = + 0.8517 \times x - 0.5240 \times y + z$	,,	8
	$- 0''.005 = + 0.9956 \times x + 0.0935 \times y + z$	,,	10
Summer	$- 0''.443 = + 0.7009 \times x + 0.7133 \times y + z$	,,	7
	$- 0''.497 = + 0.4118 \times x + 0.9113 \times y + z$	,,	7
	$- 0''.735 = + 0.1068 \times x + 0.9943 \times y + z$	,,	9
Autumn	$- 0''.232 = - 0.5160 \times x + 0.8566 \times y + z$	,,	4
	$+ 0''.776 = - 0.8289 \times x + 0.5594 \times y + z$	,,	10
	$+ 0''.368 = - 0.9928 \times x + 0.1196 \times y + z$	,,	9
Winter	$- 0''.028 = - 0.9293 \times x - 0.3692 \times y + z$	,,	9
	$+ 0''.530 = - 0.6472 \times x - 0.7623 \times y + z$	,,	10
	$+ 0''.660 = - 0.1025 \times x - 0.9947 \times y + z$	,,	4

Equations multiplied by the Weights:

Spring	$+ 4''.415 = + 2.4240 \times x - 4.3730 \times y + 5z$
	$+ 0''.816 = + 6.8136 \times x - 4.1920 \times y + 8z$
	$- 0''.050 = + 9.9560 \times x + 0.9350 \times y + 10z$
Summer	$- 3''.101 = + 4.9063 \times x + 4.9931 \times y + 7z$
	$- 3''.479 = + 2.8826 \times x + 6.3791 \times y + 7z$
	$- 6''.615 = + 0.9612 \times x + 8.9487 \times y + 9z$
Autumn	$- 0''.928 = - 2.0640 \times x + 3.4264 \times y + 4z$
	$+ 7''.760 = - 8.2890 \times x + 5.5940 \times y + 10z$
	$+ 3''.312 = - 8.9352 \times x + 1.0764 \times y + 9z$
Winter	$- 0''.252 = - 8.3637 \times x - 3.3228 \times y + 9z$
	$+ 5''.300 = - 6.4720 \times x - 7.6230 \times y + 10z$
	$+ 2''.640 = - 0.4100 \times x - 3.9788 \times y + 4z$

New Equations formed by adding and subtracting those above, as indicated below:

Spring + Summer + Autumn + Winter

$$+ 9''.818 = - 6.5902 \times x + 7.8631 \times y + 92z$$

Spring + Summer − Autumn − Winter

$$- 25''.846 = + 62.4776 \times x + 17.5187 y$$

Spring − Summer − Autumn + Winter

$$+ 15''.920 = + 14.4860 \times x - 52.9723 y$$

Solution of these Equations:

$$x = - 0''.306$$
$$y = - 0.384$$
$$z = + 0.118$$

The first term, taken alone, indicates that, at the first point of Aries, the error of the tabular Ecliptic N.P.D. is negative, or the assumed Ecliptic is north of the Sun's true path, by $0''.306$, and therefore that the right ascensions of all stars ought to be diminished by $\frac{0^s.306}{15 \times \sin 23°.27'} = 0^s.051$.

The second term, taken alone, indicates that the obliquity assumed in the Nautical Almanac ought to be diminished by $0''.384$.

The third term indicates that the obliquity deduced from the southern solstice is less than that deduced from the northern solstice by $0''.236$; or that the mean of observed distances from the pole to the ecliptic is too small by $0''.12$.

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MEAN ERRORS of the TABULAR GEOCENTRIC PLACES of the SUN and PLANETS.

THE SUN.

Extent of Group.	Number of Obs. of R.A.	Number of Obs. of N.P.D.	Mean Day, 1867.	Mean Error in R.A.	Mean Error in N.P.D.	Error in Longitude.	Error in E.P.D.
				s	"	"	"
Jan. 4 to Feb. 2	5	4	January 19	− 0·08	+ 1·14	− 1·34	+ 0·88
Feb. 9 to Feb. 25	7	7	February 17	− 0·10	+ 0·65	− 1·60	+ 0·10
March 7 to April 5	9	10	March 26	+ 0·01	− 0·07	+ 0·12	− 0·01
April 29 to May 9	6	6	May 5	− 0·05	− 0·24	− 0·62	− 0·44
May 18 to June 1	7	6	May 27	− 0·03	− 0·43	− 0·34	− 0·50
June 4 to June 26	9	8	June 15	− 0·07	− 0·69	− 0·93	− 0·74
July 17 to July 31	4	4	July 24	+ 0·05	− 0·08	+ 0·67	− 0·23
Aug. 5 to Aug. 31	11	13	August 19	+ 0·02	+ 0·93	+ 0·59	+ 0·78
Sept. 5 to Sept. 28	13	11	September 16	0·00	+ 0·40	+ 0·16	+ 0·37
Oct. 1 to Oct. 28	8	9	October 15	0·00	− 0·03	− 0·01	− 0·03
Nov. 1 to Nov. 29	10	10	November 12	0·00	+ 0·55	+ 0·15	+ 0·53
Dec. 3 to Dec. 31	4	4	December 16	+ 0·03	+ 0·68	+ 0·44	+ 0·66

MERCURY.

April 23	1	1	April 24	− 0·09	+ 1·09	− 1·68	+ 0·47
May 2 to May 8	3	3	May 6	− 0·09	+ 1·15	− 1·68	+ 0·57
June 10 to June 11	2	2	June 11	+ 0·05	+ 0·75	− 0·69	+ 0·74
June 22 to June 26	2	2	June 24	+ 0·27	+ 0·71	+ 3·81	+ 0·01
Aug. 21 to Aug. 22	2	2	August 22	− 0·11	+ 0·61	− 1·35	+ 1·02
Oct. 26	1	1	October 26	+ 0·03	+ 1·36	+ 0·74	+ 1·22

VENUS.

Jan. 28 to Feb. 1	2	2	January 31	− 0·12	+ 1·71	− 1·67	+ 1·75
Feb. 6 to Feb. 14	4	4	February 11	− 0·06	+ 0·27	− 0·86	+ 0·23
March 27 to March 31	2	2	March 30	− 0·05	− 0·67	− 0·46	− 0·88
May 5 to May 9	4	4	May 8	− 0·02	− 0·04	− 0·26	− 0·15
May 21	1	1	May 22	− 0·06	− 0·05	− 0·81	− 0·36
May 31	1	1	June 1	− 0·16	+ 0·20	− 2·28	− 0·54
June 9 to June 11	3	3	June 11	− 0·05	+ 1·13	− 0·98	+ 0·91
June 24 to June 26	2	2	June 26	− 0·03	+ 0·74	− 0·53	+ 0·67
July 24 to July 29	2	2	July 28	+ 0·07	− 0·36	+ 0·91	− 0·49
Aug. 9 to Aug. 13	3	3	August 12	+ 0·14	+ 0·59	+ 2·07	+ 0·06
Aug. 21 to Aug. 26	2	3	August 24	0·00	+ 0·49	+ 0·16	+ 0·46
Sept. 11	1	1	September 12	+ 0·19	+ 0·72	+ 2·89	− 0·44
Oct. 2 to Oct. 8	2	2	October 6	+ 0·09	− 1·60	+ 0·62	− 2·00
Oct. 23 to Oct. 28	2	2	October 25	− 0·02	− 0·17	− 0·33	− 0·07
Nov. 2 to Nov. 7	2	2	November 5	+ 0·13	− 0·21	+ 1·74	− 0·67
Nov. 27 to Nov. 29	3	3	November 28	+ 0·05	− 0·38	+ 0·66	− 0·42

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MARS.

Extent of Group.	Number of Obs. of R.A.	Number of Obs. of N.P.D.	Mean Day, 1867.	Mean Error in R.A.	Mean Error in N.P.D.	Error in Longitude.	Error in E.P.D.
				s	"	"	"
Jan. 4 to Jan. 18	3	3	January 12	0·00	− 1·00	− 0·15	− 0·99
Jan. 28 to Feb. 23	7	7	February 9	+ 0·02	+ 0·35	+ 0·30	+ 0·33
Feb. 28 to Mar. 6	4	4	March 3	− 0·05	+ 0·73	− 0·60	+ 0·79
Mar. 15 to April 9	6	6	March 27	− 0·04	− 0·28	− 0·58	− 0·20

CERES.

May 7 to May 8	2	2	May 9	− 1·14	−13·23	−19·04	− 9·68
May 18 to May 28	4	4	May 23	− 1·10	−13·28	−18·66	− 9·49
May 29 to June 4	5	5	June 1	− 1·05	−14·13	−18·22	−10·26
June 10 to June 11	2	2	June 11	− 1·19	−14·49	−20·37	− 9·91

PALLAS.

May 3 to May 7	4	4	May 6	+ 0·67	+ 0·25	+11·86	− 2·61
May 18 to May 29	7	7	May 24	+ 0·73	+ 0·63	+12·88	− 2·78
May 31 to June 11	5	5	June 4	+ 0·71	+ 0·27	+12·23	− 3·17

JUNO.

Feb. 23 to March 4	5	4	March 1	− 1·58	− 1·60	−22·47	+ 7·64
March 16 to April 5	6	5	March 27	− 1·55	− 3·19	−22·57	+ 5·68

VESTA.

Dec. 24	1	1	December 24	− 0·10	+ 2·00	− 1·33	+ 2·05

ASTRÆA.

Jan. 11	1	1	January 12	+ 6·37	+13·58	+92·96	− 8·39
Jan. 25 to Feb. 6	2	2	January 31	+ 6·47	+11·71	+93·10	− 7·96

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CERES.

Day, 1867.	Error of the Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's Mean Distance from the Sun.)	Error of Tables in Hel. E. P. D.
May 9	$-19''.04 = +1.565\,\delta L - 9583\,\delta \rho$	$-6''.10 \quad -3355\,\delta \rho$
23	$-18.66 = +1.581 \quad +2973$	$-6.07 \quad -2989$
June 1	$-18.22 = +1.557 \quad +10755$	$-6.70 \quad -2673$
11	$-20.37 = +1.504 \quad +18219$	$-6.71 \quad -2262$

PALLAS.

May 6	$+11.86 = +1.685\,\delta L + 1144\,\delta \rho$	$-2.16 \quad -24107\,\delta \rho$
24	$+12.88 = +1.608 \quad +21990$	$-1.49 \quad -23415$
June 4	$+12.23 = +1.509 \quad +30989$	$-1.46 \quad -21883$

JUNO.

March 1	$-22.47 = +1.574\,\delta L - 3316\,\delta \rho$	$+4.84 \quad +1354\,\delta \rho$
27	$-22.57 = +1.477 \quad +18293$	$+3.83 \quad +375$

VESTA.

December 24	$-1.33 = +1.623\,\delta L - 1909\,\delta \rho$	$+1.26 \quad +1087\,\delta \rho$

ASTRÆA.

January 12	$+92.96 = +1.842\,\delta L - 18535\,\delta \rho$	$-4.20 \quad +3026\,\delta \rho$
31	$+93.10 = +1.862 \quad +16438$	$-4.48 \quad +2221$

JUPITER.

July 25	$+2''.13 = +1.203\,\delta L -$	$5681\,\delta \rho$	$-0.203\,\delta l$	$+28027\,\delta r$		$+2''.51$
August 7	$-0.35 = +1.234 -$	3599	-0.235	$+17814$		$+1.69$
23	$-0.96 - +1.252 -$	555	-0.252	$+2775$		$+1.64$
September 13	$-1.84 = +1.234 +$	3498	-0.234	-17384		$+1.24$
October 4	$-2.55 = +1.175 +$	6614	-0.175	-33046		$+1.18$
30	$-2.46 = +1.079 +$	8408	-0.079	-42312		$+0.69$
December 2	$-1.56 = +0.967 +$	7947	$+0.033$	-40212		$+0.84$

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SATURN.

Day, 1867.		Error of the Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's Mean Distance from the Sun.)								Error of Tables in Hel. E. P. D.
		"				"			"	"
February	25	+ 5·76	=	+ 1·022	δL	− 2087	$\delta \rho$	− 0·022 δl	+ 20893 δr	+ 7·37
April	7	+ 2·78	=	+ 1·089		− 1347		− 0·089	+ 13328	+ 6·22
May	4	+ 0·88	=	+ 1·112		− 323		− 0·112	+ 3153	+ 5·91
	29	− 2·45	=	+ 1·108		+ 730		− 0·108	− 7145	+ 6·66
June	24	− 3·43	=	+ 1·079		+ 1614		− 0·079	− 15736	+ 6·89

URANUS.

January	21	+217·95	=	+ 1·049	δL	+ 260	$\delta \rho$	− 0·049 δl	− 4964 δr	− 9·94
March	2	+211·88	=	+ 1·021		+ 543		− 0·021	− 10295	− 9·82
December	11	+214·91	=	+ 1·051		− 235		− 0·051	+ 4462	− 10·10

NEPTUNE.

January	11	+ 32·87	=	+ 0·994	δL	+ 224	$\delta \rho$	+ 0·006 δl	− 6756 δr	− 1·35
September	15	+ 43·09	=	+ 1·032		− 91		− 0·032	+ 2688	+ 0·56
October	3	+ 41·42	=	+ 1·035		− 19		− 0·035	+ 497	+ 0·38
November	4	+ 37·99	=	+ 1·030		+ 114		− 0·030	− 3421	+ 1·26
December	5	+ 36·61	=	+ 1·017		+ 200		− 0·017	− 6124	+ 0·40

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ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF γ DRACONIS

WITH THE

REFLEX ZENITH TUBE;

AND

REDUCTION OF THE OBSERVATIONS.

1867.

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Day and Hour of Observation, 1867.	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalents for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1867, Jan. 1.	Mean Zenith Distance North, 1867, Jan. 1, from each Observation.	Concluded Mean Zenith Distance North, 1867, Jan. 1.
				r	r	div.	div.	"	"	"	"	"	"	"
August d h 19. 8	C	Left	16	38·716	49·449	26·0	80·2	0·69	355·70	229·88	125·82	−25·09	100·73	101·54
" "		Right	15	36·612	49·449	30·0	84·8	0·74	102·45		127·43		102·34	
August 20. 8	K	Right	15	36·655	49·448	28·8	83·0	0·72	103·13		126·75	−25·23	101·52	103 06
" "		Left	16	36·655	51·748	27·0	81·4	0·70	359·70		129·82		104·59	
August 24. 8	JC	Right	16	39·551	33·554	29·4	82·5	0·72	103·03		126·85	−25·79	101·06	102·20
" "		Left	17	39·551	35·812	27·7	81·2	0·70	359·01		129·13		103·34	
August 27. 8	P	Right	16	37·308	35·812	26·5	82·4	0·70	103·26		126·62	−26·21	100·41	101·38
" "		Left	17	37·308	38·020	26·9	83·1	0·71	358·43		128·55		102·34	
August 30. 8	JC	Right	16	34·984	38·022	26·8	82·3	0·70	101·34		128·54	−26·57	101·97	101·96
" "		Left	17	34·984	40·340	29·0	85·2	0·74	358·39		128·51		101·94	
September 4. 7	C	Left	17	35·000	40·349	30·0	85·4	0·75	358·82		128·94	−26·97	101·97	102·61
" "		Right	16	32·560	40·349	22·8	78·9	0·66	99·67		130·21		103·24	
September 5. 7	JC	Right	16	32·653	40·349	24·0	79·8	0·67	101·25		128·63	−27·05	101·58	102·24
" "		Left	17	32·653	42·754	32·2	88·3	0·78	359·83		129·95		102·90	
September 16. 6	K	Left	17	32·654	42·691	28·7	85·6	0·74	358·75		128·87	−27·61	101·26	102·40
" "		Right	16	30·161	42·691	23·8	80·8	0·68	98·74		131·14		103·53	
September 19. 6	P	Left	17	29·024	46·433	29·2	85·7	0·74	360·63		130·75	−27·68	103·07	103·41
" "		Right	16	26·404	46·433	22·8	80·0	0·66	98·46		131·42		103·74	
September 20. 6	HC	Left	17	26·500	48·981	31·0	87·5	0·77	361·06		131·18	−27·67	103·51	103·25
" "		Right	16	23·901	48·981	23·8	79·7	0·67	99·23		130·65		102·98	
September 25. 6	E	Right	16	34·134	38·800	23·7	82·3	0·69	100·12		129·76	−27·62	102·14	103·50
" "		Left	17	34·134	41·424	30·3	88·8	0·77	362·36		132·48		104·86	
September 28. 6	JC	Left	17	34·134	41·243	28·0	85·7	0·73	359·27		129·39	−27·59	101·80	101·80
" "		Right	16	31·714	41·243	23·2	80·7	0·67	100·49		129·39		101·80	
October 1. 5	P	Left	17	31·687	43·722	28·6	86·2	0·74	359·82		129·94	−27·41	102·53	103·38
" "		Right	16	29·100	43·722	24·7	82·2	0·69	98·24		131·64		104·23	
October 10. 5	K	Right	16	31·936	41·068	24·6	85·5	0·71	101·32		128·56	−26·75	101·81	101·81

The numerical value of the Sum of Equivalents in column 10, $= w$ + (sum of Micrometer Readings − 80) × 16″·780 + sum of Level Readings × 0″·00646; where w, for wire 15, = 0; for wire 16, = 3′.38″·00; and, for wire 17, = 7′. 16″·12. The numerical difference between this value and that of the Instrumental Constant is the Star's Z.D. North.

August 30. Faint; cloudy.
October 10. Very faint.

September 25. Image rather unsteady.

October 1. Faint and very tremulous.

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Day and Hour of Observation, 1867	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalents for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1867, Jan. 1.	Mean Zenith Distance North, 1867, Jan. 1, from each Observation.	Concluded Mean Zenith Distance North, 1867, Jan. 1.
d h				r	r	div.	div.	"	"	"	"	"	"	"
October 17. 4	HC	Left	17	32·000	43·261	29·5	86·5	0·75	357·35	229·88	127·47	−25·91	101·56	103·75
" "		Right	16	29·549	43·261	24·5	81·0	0·68	98·03		131·85		105·94	
November 6. 3	P	Left	18	29·358	32·850	28·7	89·4	0·76	356·25		126·37	−22·29	104·08	103·48
" "		Right	17	27·359	32·850	23·0	83·7	0·69	104·71		125·17		102·88	
November 7. 3	HC	Left	18	27·359	34·958	28·5	88·8	0·76	358·08		128·20	−22·09	106·11	106·11

The numerical value of the Sum of Equivalents in column 10, $= w$ + (sum of Micrometer Readings − 80) × 16″·780 + sum of Level Readings × 0″·00646; where w, for wire 16, = 3′. 38″·00; for wire 17, = 7′. 16″·12; and, for wire 18, = 10′. 54″·04. The numerical difference between this value and that of the Instrumental Constant is the Star's Z.D. North.

October 17. Star's image very faint. The mercury unsteady owing to a strong wind.

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ECLIPSES, OCCULTATIONS, and TRANSITS of JUPITER'S SATELLITES, 1867.

Day of Observation, 1867.	Satellite.	Phenomenon.	Phase of Phenomenon.	Observer.	Instrument.	Clock or Chronometer.	Time Noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.	Mean Time of Nautical Almanac.	Apparent Error of Nautical Almanac.
							h m s	h m s	h m s	h m s	h m s	m s
June 14	III	Occ. reap....	Bisection	JC	E. Eq.	E	19. 58. ±	19. 58. ..	19. 59. ..	14. 27. ..		
June 28	III	Ecl. disap. ..	....	D	Altaz.	G[1]	19. 58. 45	19. 58. 39	19. 59. 27	13. 32. 46	13. 33. 14	+0. 27
July 9	III	(*a*) Ingress ..	Bisection	K	N. Eq.	A[1]	19. 8. 50 ±	19. 9. 0	19. 9. 59	12. 0. 12		
July 10	IV	Ecl. reap....	....	E	E. Eq.	E	20. 57. 2 ..	20. 56. 29	20. 57. 30	13. 43. 29	13. 48. 40	+5. 11
Aug. 10	III	Ecl. disap....	....	D	Altaz.	G[1]	22. 53. 5 ..	22. 53. 8	22. 53. 48	13. 37. 34	13. 36. 48	−0. 46
Sept. 5	I	Occ. disap...	First contact	JC	S.E. Eq.	T C	21. 39. 30 ±	21. 39. 30	21. 39. 52	10. 41. 37		
			Bisection	JC	S.E. Eq.	T C	21. 41. 15 ±	21. 41. 15	21. 41. 37	10. 43. 22		
			Last contact.....	JC	S.E. Eq.	T C	21. 43. 30 ±	21. 43. 30	21. 43. 52	10. 45. 37		
Sept. 5	I	Ecl. reap....	....	JC	S.E. Eq.	T C	0. 15. 45 ±	0. 15. 45	0. 16. 7	13. 17. 27	13. 18. 10	+0. 43
Sept. 6	I	Ingress	Bisection	K	N. Eq.	A[1]	18. 58. 55 ±	19. 0. 5	19. 0. 29	7. 58. 44		
			Last contact.....	K	N. Eq.	A[1]	19. 1. 15 ±	19. 2. 25	19. 2. 49	8. 1. 4		
Sept. 15	III	(*b*) Occ. disap.	First contact	JC	S.E. Eq.	T C	19. 3. 30 ±	19. 3. 30	19. 4. 10	7. 27. 1		
			Bisection	JC	S.E. Eq.	T C	19. 7. 0 ±	19. 7. 0	19. 7. 40	7. 30. 31		
			Total disap.....	JC	S.E. Eq.	T C	19. 10. 30 ±	19. 10. 30	19. 11. 10	7. 34. 0		
Sept. 15	II	Ecl. reap....	....	JC	S.E. Eq.	T C	20. 35. 28 ..	20. 35. 28	20. 36. 8	8. 58. 44	8. 58. 51	+0. 7
Sept. 15	IV	Occ. reap....	Bisection	JC	S.E. Eq.	T C	21. 8. ±	21. 8. ..	21. 9. ..	9. 31. ..		
			Last contact.....	JC	S.E. Eq.	T C	21. 12. ±	21. 12. ..	21. 13. ..	9. 35. ..		
Sept. 15	IV	Ecl. disap. ..	....	JC	S.E. Eq.	T C	21. 37. 5 ..	21. 37. 5	21. 37. 45	10. 0. 11	10. 3. 54	+3. 43
Sept. 15	IV	(*c*) Ecl. reap.	....	JC	S.E. Eq.	T C	2. 1. 30 ..	2. 1. 30	2. 2. 10	14. 23. 53	14. 27. 4	+3. 11
Sept. 20	I	Ingress	First contact	HC	E. Eq.	E	23. 19. 26 ±	23. 19. 44	23. 20. 32	11. 23. 2		
			Bisection	HC	E. Eq.	E	23. 21. 28 ±	23. 21. 46	23. 22. 34	11. 25. 4		
			Last contact.....	HC	E. Eq.	E	23. 24. 6 ±	23. 24. 24	23. 25. 12	11. 27. 41		
Sept. 21	I	Occ. disap. .	Bisection	E	E. Eq.	E	20. 39. 30 ±	20. 39. 47	20. 40. 38	8. 39. 38		
Sept. 22	III	Occ. disap...	First contact	L	Altaz.	G[1]	22. 52. 30 ±	....	22. 53. 5	10. 47. 48		
			Bisection	L	Altaz.	G[1]	22. 55. 0 ±	....	22. 55. 35	10. 50. 17		
			Last contact.....	L	Altaz.	G[1]	22. 57. 0 ±	....	22. 57. 35	10. 52. 17		
Sept. 22	II	Ecl. reap....	....	L	Altaz.	G[1]	23. 39. 39½	....	23. 40. 15	11. 34. 50	11. 34. 12	−0. 38
Oct. 1	II	Egress.....	Bisection	P	Altaz.	G[1]	20. 6. 30 ±	20. 6. 55	20. 7. 3	7. 26. 50		
			Last contact.....	P	Altaz.	G[1]	20. 8. 45 ±	20. 9. 10	20. 9. 18	7. 29. 5		
Oct. 10	III	Ingress.....	First contact	K	N. Eq.	A[1]	21. 0. 30 ±	21. 0. 56	21. 1. 18	7. 45. 33		
			Bisection	K	N. Eq.	A[1]	21. 4. 5 ±	21. 4. 31	21. 4. 53	7. 49. 7		
			Last contact.....	K	N. Eq.	A[1]	21. 7. 0 ±	21. 7. 26	21. 7. 48	7. 52. 2		
Oct. 10	IV	Egress	Bisection	K	E. Eq.	E	23. 20. 30 ±	23. 20. 40	23. 21. 3	10. 4. 55		
			Last contact.....	K	E. Eq.	E	23. 25. 40 ±	23. 25. 50	23. 26. 13	10. 10. 4		
Oct. 10	III	Egress	Bisection	K	E. Eq.	E	0. 42. 25 ±	0. 42. 35	0. 42. 58	11. 26. 36		
			Last contact.....	K	E. Eq.	E	0. 45. 30 ±	0. 45. 40	0. 46. 3	11. 29. 41		

(*a*.) The observation uncertain ; the image blurred. (*b*.) The image of the planet very tremulous and diffused.
(*c*.) A little uncertain, in consequence of the satellite reappearing close to the third satelliite. The image of the planet very bad.

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ECLIPSES, OCCULTATIONS, and TRANSITS of JUPITER'S SATELLITES, 1867—*concluded.*

Day of Observation, 1867.	Satellite.	Phenomenon.	Phase of Phenomenon.	Observer.	Instrument.	Clock or Chronometer.	Time noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.	Mean Time of Nautical Almanac.	Apparent Error of Nautical Almanac.
							h m s	h m s	h m s	h m s	h m s	m s
Oct. 17	II	(*a*) Ecl. reap.	....	HC	E. Eq.	E	22. 23. 23 ±	22. 22. 50	22. 23. 22	8. 39. 52	8. 39. 21	−0. 31
Oct. 28	III	Occ. reap....	Bisection	JC	E. Eq.	E	22. 49. 30 ±	22. 47. 32	22. 48. 21	8. 21. 32		
			Last contact.....	JC	E. Eq.	E	22. 51. 30 ±	22. 49. 32	22. 50. 21	8. 23. 31		
Oct. 28	III	Ecl. disap. ..	....	JC	E. Eq.	E	0. 23. 10 ..	0. 22. 12	0. 23. 1	9. 55. 56	9. 56. 22	+0. 26
Nov. 2	II	(*b*) Egress...	Bisection	JC	E. Eq.	J C	21. 13. 30 ±	21. 10. 58	21. 11. 55	6. 25. 42		
			Last contact....	JC	E. Eq.	J C	21. 16. 30 ±	21. 13. 58	21. 14. 55	6. 28. 41		
Nov. 6	I	Occ. disap...	Bisection	JC	E. Eq.	J C	23. 36. 30 ±	23. 33. 33	23. 34. 34	8. 32. 14		
			Last contact.....	JC	E. Eq.	J C	23. 39. 30 ±	23. 36. 33	23. 37. 34	8. 35. 14		
Nov. 7	I	(*c*) Egress...	Last contact.....	C	E. Eq.	E	23. 9. 30 ±	23. 7. 28	23. 7. 30	8. 1. 19		
Nov. 8	I	Ecl. reap....	....	E	E. Eq.	E	21. 50. 27 ..	21. 48. 19	21. 48. 23	6. 38. 28	6. 38. 9	−0. 19
Nov. 11	II	Ecl. reap....	....	C	N. Eq.	A[1]	21. 9. 46 ..	21. 10. 14	21. 10. 21	5. 48. 45	5. 46. 45	−2. 0
Nov. 23	I	Egress.....	First contact	C	N. Eq.	A[1]	22. 27. 30 ±	22. 27. 34	22. 27. 48	6. 18. 49		
			Last contact.....	C	N. Eq.	A[1]	22. 29. 0 ±	22. 29. 4	22. 29. 18	6. 20. 18		
Dec. 7	I	(*d*) Ingress ..	First contact]....	C	E. Eq.	E	1. 3. 15 ±	1. 0. 14	1. 0. 30	7. 56. 3		

(*a.*) Very uncertain; reappeared very near the third satellite. (*b.*) The satellite faint; the definition of the planet bad.
(*f.*) The planet very ill defined and tremulous. (*d.*) The image of the planet very bad.

OCCULTATIONS of STARS by the MOON, 1867.

Day of Observation, 1867.	Name of Object.	Phenomenon.	Moon's Limb.	Observer.	Instrument.	Clock or Chronometer.	Time Noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.
							h m s	h m s	h m s	h m s
May 6	(*a*) 117 Tauri	Disappearance	Dark	C	E. Equat.	E	11. 2. 15±	11. 0. 24·7	11. 0. 45·8	8. 3. 56·5
May 6	(*b*) 117 Tauri	Reappearance	Bright	C	E. Equat.	E	11. 39. 17..	11. 37. 26·7	11. 37. 47·9	8. 40. 52·4
June 14	49 Libræ ...	Disappearance	Dark	JC	Altazimuth	G[1]	18. 1. 54·2	18. 2. 21·9	18. 2. 34·6	12. 31. 15·7
Nov. 6	(*c*) λ Aquarii	Disappearance	Dark	JC	E. Equat.	E	1. 32. 53·0	1. 29. 55·3	1. 30. 56·7	10. 28. 17·7
Nov. 8	10 Ceti.....	Disappearance	Dark	E	E. Equat.	E	22. 19. 3·8	22. 16. 56·1	22. 16. 59·7	7. 7. 0·5

(*a.*) The star extremely faint; the observation doubtful perhaps to a second or two. (*b.*) Pretty good.
(*c.*) Cloudy. The time noted by the observer has been increased by one minute.

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Disappearance of 117 Tauri, 1867, May 6^d. 8^h. 3^m. 56^s·5 + t, Greenwich Mean Solar Time.

	° ′ ″	″	″	
Right Ascension of Zenith in arc.....	165. 11. 27·30		+ 15·0	× t
Moon's Right Ascension in arc.....	80. 32. 27·90	+ x	+ 0·6507	× t
Moon's N. P. D.....	71. 56. 22·48	+ y	− 0·0399	× t
Moon's Horizontal Equatoreal Parallax	60. 37·73	× $\left(1 + \frac{m}{1000}\right)$		
Moon's Semidiameter	16. 32·86	× $\left(1 + \frac{n}{1000}\right)$		
Star's Right Ascension in arc	80. 4. 35·25	+ e''		
Star's N. P. D.....	72. 52. 37·60	+ f	″	″
Geocentric R.A. of corresponding point in arc	80. 44. 11·77	+ e	+ 0·0014 × t	+ 2·3765 × m
Geocentric N. P. D. of corresponding point.....	72. 8. 31·11	+ f	− 0·0468 × t	− 2·6465 × m

Geocentric distance of center from corresponding point,

′ ″ ″

$$16.29{\cdot}56 + 0{\cdot}6439 \times \{ + e - x - 0{\cdot}6493 \times t + 2{\cdot}3765 \times m \}$$
$$+ 0{\cdot}7367 \times \{ f - 0{\cdot}0468 \times t - 2{\cdot}6465 \times m \}$$
$$- 0{\cdot}7361 \times \{ y - 0{\cdot}0399 \times t \}$$

Final Equation.

$$+ 3{\cdot}30 = + 0{\cdot}6439 \times e + 0{\cdot}7367 \times f - 0{\cdot}6439 \times x - 0{\cdot}7361 \times y - 0{\cdot}4230 \times t - 0{\cdot}4192 \times m - 0{\cdot}9929 \times n$$

Reappearance of 117 Tauri, 1867, May 6^d. 8^h. 40^m. 52^s·4 + t, Greenwich Mean Solar Time.

	° ′ ″	″	″	
Right Ascension of Zenith in arc.....	174. 26. 57·75		+ 15·0	× t
Moon's Right Ascension in arc.....	80. 56. 29·85	+ x	+ 0·6508	× t
Moon's N. P. D.....	71. 54. 55·87	+ y	− 0·0377	× t
Moon's Horizontal Equatoreal Parallax	60. 37·37	× $\left(1 + \frac{m}{1000}\right)$		
Moon's Semidiameter.....	16. 32·76	× $\left(1 + \frac{n}{1000}\right)$		
Star's Right Ascension in arc	80. 4. 35·25	+ e''		
Star's N. P. D.....	72. 52. 37·60	+ f	″	″
Geocentric R. A. of corresponding point in arc.....	80. 44. 13·73	+ e	− 0·0126 × t	+ 2·3785 × m
Geocentric N. P. D. of corresponding point.....	72. 6. 43·40	+ f	− 0·0468 × t	− 2·7542 × m

Geocentric distance of center from corresponding point,

′ ″ ″

$$16.35{\cdot}39 + 0{\cdot}6690 \times \{ - e + x + 0{\cdot}6634 \times t - 2{\cdot}3785 \times m \}$$
$$+ 0{\cdot}7112 \times \{ f - 0{\cdot}0468 \times t - 2{\cdot}7542 \times m \}$$
$$- 0{\cdot}7104 \times \{ y - 0{\cdot}0377 \times t \}$$

Final Equation.

$$- 2{\cdot}63 = - 0{\cdot}6690 \times e + 0{\cdot}7112 \times f + 0{\cdot}6690 \times x - 0{\cdot}7104 \times y + 0{\cdot}4371 \times t - 3{\cdot}5500 \times m - 0{\cdot}9928 \times n$$

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Disappearance of 49 Librae, 1867, June 14d. 12h. 31m. 15s·7 + t^s, Greenwich Mean Solar Time.

	° ′ ″	″	″
Right Ascension of Zenith in arc	270. 38. 39·30	+ 15·0	× t
Moon's Right Ascension in arc.....	238. 18. 29·85	+ x + 0·5082	× t
Moon's N. P. D.	105. 25. 43·95	+ y + 0·0900	× t
Moon's Horizontal Equatoreal Parallax.....	54. 16·18	× $\left(1 + \frac{m}{1000}\right)$	
Moon's Semidiameter....	14. 48·71	× $\left(1 + \frac{n}{1000}\right)$	
Star's Right Ascension in arc.....	238. 13. 36·60	+ e''	
Star's N. P. D.	106. 8. 19·70	+ f ″	″
Geocentric R. A. of corresponding point in arc....	238. 32. 26·14	+ e + 0·1262 × t + 1·1295 × m	
Geocentric N. P. D. of corresponding point.....	105. 19. 46·30	+ f + 0·0214 × t − 2·9134 × m	

Geocentric distance of center from corresponding point,

$$14'.42''.10 + 0''.9892 \times \{ + e - x - 0.3820 \times t + 1.1295 \times m \} - 0.4060 \times \{ f + 0.0214 \times t - 2.9134 \times m \} + 0.4050 \times \{ y + 0.0900 \times t \}$$

Final Equation.

$$+ 6''.61 = + 0.9892 \times e - 0.4060 \times f - 0.9892 \times x + 0.4050 \times y - 0.3501 \times t + 2.3001 \times m - 0.8887 \times n$$

Disappearance of λ Aquarii, 1867, November 6d. 10h. 28m. 17s·7 + t^s, Greenwich Mean Solar Time.

	° ′ ″	″	″
Right Ascension of Zenith in arc.....	22. 44. 10·80	+ 15·0	× t
Moon's Right Ascension in arc.....	341. 34. 42·75	+ x + 0·5036	× t
Moon's N. P. D.	97. 35. 30·54	+ y − 0·1532	× t
Moon's Horizontal Equatoreal Parallax.....	55. 46·38	× $\left(1 + \frac{m}{1000}\right)$	
Moon's Semidiameter.....	15. 13·35	× $\left(1 + \frac{n}{1000}\right)$	
Star's Right Ascension in arc.....	341. 25. 45·60	+ e''	
Star's N. P. D.	98. 16. 51·20	+ f ″	″
Geocentric R. A. of corresponding point in arc	341. 48. 56·00	+ e + 0·1122 × t + 1·3904 × m	
Geocentric N. P. D. of corresponding point.....	97. 30. 5·87	+ f + 0·0140 × t − 2·8053 × m	

Geocentric distance of center from corresponding point,

$$15'.6''.03 + 0''.9258 \times \{ + e - x - 0.3914 \times t + 1.3904 \times m \} - 0.3586 \times \{ f + 0.0140 \times t - 2.8053 \times m \} + 0.3580 \times \{ y - 0.1532 \times t \}$$

Final Equation.

$$+ 17''.32 = + 0.9258 \times e - 0.3586 \times f - 0.9258 \times x + 0.3580 \times y - 0.4219 \times t + 2.2932 \times m - 0.9134 \times n$$

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Disappearance of 10 Ceti, 1867, November $8^d.\ 7^h.\ 7^m.\ 0^s.5 + t'$, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc.....	$334.\ 14.\ 54.75 + 15.0 \times t$
Moon's Right Ascension in arc.....	$4.\ 25.\ 15.45 + x + 0.5231 \times t$
Moon's N.P.D.....	$90.\ 7.\ 56.23 + y - 0.1768 \times t$
Moon's Horizontal Equatoreal Parallax.....	$57.\ 14.79 \times \left(1 + \frac{m}{1000}\right)$
Moon's Semidiameter.....	$15.\ 37.48 \times \left(1 + \frac{n}{1000}\right)$
Star's Right Ascension in arc.....	$4.\ 57.\ 49.20 + e''$
Star's N.P.D.....	$90.\ 46.\ 52.80 + f$
Geocentric R.A. of corresponding point in arc.....	$4.\ 39.\ 34.32 + e + 0.1301 \times t - 1.0949 \times m$
Geocentric N.P.D. of corresponding point.....	$90.\ 1.\ 53.08 + f - 0.0011 \times t - 2.6997 \times m$

Geocentric distance of center from corresponding point,

$$15'.\ 32''.49 + 0''.9211 \times \{ + e - x - 0.3930 \times t - 1.0949 \times m \}$$
$$- 0.3895 \times \{ f - 0.0011 \times t - 2.6997 \times m \}$$
$$+ 0.3895 \times \{ y - 0.1768 \times t \}$$

Final Equation.

$$+ 4.99 = + 0.9211 \times e - 0.3895 \times f - 0.9211 \times x + 0.3895 \times y - 0.4305 \times t + 0.0330 \times m - 0.9375 \times n$$

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ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS.

1867.

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GREENWICH MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1867.

Introduction.

§ 1. *Buildings of the Magnetic Observatory.*

In consequence of a representation by the Astronomer Royal, dated 1836, January 12, and a memorial by the Board of Visitors of the Royal Observatory, dated 1836, February 26, addressed to the Lords Commissioners of the Admiralty, an additional space of ground on the south-east side of the former boundary of the Observatory grounds was inclosed from Greenwich Park for the site of a Magnetic Observatory, in the summer of 1837, and the Magnetic Observatory was erected in the spring of 1838. Its nearest angle in its present form is about 174 feet from the nearest point of the S.E. dome, and about 30 feet from the office of Clerk of Works. It is based on concrete and built of wood, united for the most part by pegs of bamboo; no iron was admitted in its construction, or in subsequent alterations. Its form, as originally built, was that of a cross with four equal arms, very nearly in the direction of the cardinal magnetic points as they were in 1838; the length within the walls, from the extremity of one arm of the cross to the extremity of the opposite arm, was 40 feet, the breadth of each arm 12 feet. In the spring of 1862, the northern arm was extended 8 feet. The height of the walls inside is 10 feet, and the ceiling of the room is about 2 feet higher. The northern arm of the cross is separated from the central square by a partition, so as to form an ante-room. The meridional magnet, for observations of absolute declination and of variations of declination (placed in its position in 1838), is mounted in the southern arm; and the theodolite by which the magnet collimator is viewed, and by which circumpolar stars for determination of the astronomical meridian are also observed (for which observation an opening is made in the roof, with proper shutters,) is in the southern arm, near the southern boundary of the central square. The bifilar magnet, for variations of horizontal magnetic force (erected at the end of 1840) was mounted near the northern wall of the eastern arm; and the balance-magnetometer, for variations of vertical magnetic force (erected in 1841) was mounted near the northern wall of the western arm. Important changes have lately been made in the positions of these instruments, as will be mentioned below. The sidereal time-clock is in the south arm, near the south-east re-entering angle. The fire-grate (constructed of copper, as far as possible,) is near the north end of the west side of the ante-room. Some of these fixtures may contain trifling quantities of iron, and, as the ante-room is used as a computing room

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it is impossible to avoid the introduction of iron in small quantities; great care, however, is taken to avoid it as far as possible.

In 1864, a room, called the Magnetic Basement, was excavated below the whole of the Magnetic Observatory except the ante-room; the descent to it is by a staircase close to the south wall of the western arm of the building. For the theodolite, a brick pier was built from the ground below the floor of the basement, rising through the ceiling into the south arm of the upper room, and supporting the theodolite in exactly the same position as before.

Instead of a single meridional magnet performing the double functions of "magnet for determining absolute magnetic declination," and "magnet carrying a mirror for photographic register," there are now two meridional magnets, one in the upper room and one in the basement. The upper magnet is in a position about 10 inches north of the former position of the declination-magnet; it carries a collimator, for observation by the theodolite; but, in reversion of position of the collimator, the collimator is always either above or below the magnet, so that the magnet is always in the same vertical. The lower magnet, which is in the same vertical with the upper magnet, carries the mirror for the photographic register of the continual changes of declination. A massive brick pier is built in the south arm of the basement, covered by a stone slab; upon it is fixed the photographic lamp; from the stone slab rise three smaller piers, upon which crossed slates are placed; and from these rises a small pier through the ceiling, to the height of 18 inches above the upper floor, carrying the suspension of the lower magnet. Upon the tops of the three piers rest the feet of the original wooden stand carrying the suspension of the upper magnet.

The bifilar-magnetometer is in the basement, in a position vertically below its former position. A massive brick pier, surmounted by a thick slab of stone (upon which the photograph lamp is fixed) carries a pier consisting of a back and return-sides, which rises through the ceiling about 2 feet above the upper floor, and is crowned by a slate slab that carries the suspension of the bifilar-magnetometer.

The vertical-force magnetometer is in the basement, in a position vertically below its former position; it rests upon a brick pier, capped by a thick stone; to which also is fixed the plate of metal with narrow chink through which passes the light of the photographic lamp.

To the theodolite-pier are fixed telescopes for eye-observation of the bifilar and vertical-force magnetometers.

At the south-east re-entering angle (which has been rebated for the purpose) is the horizontal photographic cylinder, which receives the traces of the movements of the declination-magnet and the bifilar-magnet. The angle is so far cut away that the straight line joining their suspensions passes at the distance of one foot from the wall, and thus the cylinder receives the light from both instruments at right angles to its surface. The vertical cylinder which receives the traces of the movements of the vertical-force-magnet, and, of the self-registering barometer near it, is east of the vertical force pier.

In the south-west corner of the western arm, and partially beneath the staircase

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is the apparatus for self-registration of the spontaneous galvanic currents on the wires leading respectively to Croydon and to Dartford. (See below, § 12). After the year 1867 these wires were taken down and refixed in new directions; the self-registering apparatus, however, was not moved.

The mean-time-clock is on the west wall of the south arm of the basement.

Adjoining the north wall is the table for photographic operations. Much water is used in these operations, and therefore a pump is provided in the grounds at a distance of about 30 feet from the nearest magnetometer, by which the water is withdrawn from the cistern at the east end of the photographic table and at once discharged into a covered drain.

The basement is warmed by a gas-stove, and ventilated by a large copper tube nearly two feet in diameter, receiving the flues from the stove and all the lamps, and passing through the upper room to a revolving cowl above the roof. Each of the arms of the basement has a window facing the south, but in general the window wells are closely stopped.

The variations in the temperature of the instruments have been greatly reduced by their location within this basement.

On the outside of the Magnetic Observatory, near the north-east corner of the ante-room, a pole 79 feet in height is fixed, for the support of the conducting wires to the electrometers; the electrometers, &c., are planted in the window-seat at the north-end of the ante-room.

The apparatus for naphthalizing the gas used in the photographic registration was formerly fixed in a corner of the ante-room, but is now (1867) mounted in a small detached zinc-built room, erected in 1863, near the west side of the ante-room.

A small wooden building, in the direction S.S.E. (magnetic) from the Magnetic Observatory, 64 feet from its nearest angle, and very near the southern boundary of the grounds, was used till 1863 for the observation of Magnetic Dip; and another small building, in the direction S. (magnetic) from the Magnetic Observatory, 50 feet from the western angle of the southern arm, was used till 1862 for the observation of Deflexions. In 1863, these buildings were removed, and a range of seven rooms, usually called the Magnetic Offices, was erected near the southern fence of the grounds. Since the summer of 1863, observations of Dip and Deflexion have been made in the westernmost of these rooms.

At the distance of 28 feet south (magnetic) from the south-east angle of the southern arm is a square shed about $10^{ft}\ 6^{in}$ square, supported by four posts at the height 8 feet, with an adjustable opening at the center of the top. Under this shed are placed the large dry-bulb and wet-bulb thermometers, with a photographic cylinder, axis vertical, between them; and external to these are the gas flames, whose light passing through the thermometer-tubes above the quicksilver makes photographic traces upon the paper which covers the cylinder.

For better understanding of these descriptions, the reader is referred to the Descriptions of Buildings and Grounds with accompanying Maps, attached to the Volumes of Astronomical Observations for the years 1845 and 1862.

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2. Value of one revolution of the micrometer-screw of the theodolite telescope.

On 1862, December 26, observations were made, giving for the value of one revolution of the micrometer 1′. 33″·85. On 1865, December 27, the magnet was made to rest on blocks of wood, and its collimator was used as a fixed mark at an infinite distance. The micrometer of the theodolite was placed in different positions, and the telescope of the theodolite was then turned till the micrometer wire bisected the cross. The result of ten comparisons of theodolite-readings with large values and with small values of the micrometer-reading was, that one revolution = 1′. 34″·8. This is used through the year 1867.

3. Determination of the micrometer-reading for the line of collimation of the theodolite-telescope.

1867, January 1. The vertical axis of the theodolite had been adjusted to verticality, and the transit axis was made horizontal. The declination-magnet was made to rest on blocks, and the cross-wires carried by it were used as a collimator for determining the line of collimation of the telescope of the theodolite. The telescope was reversed after each observation. The mean of 20 double observations was 100ʳ·090. This value is used throughout the year 1867.

4. Determination of the effect of the mean-time-clock on the declination-magnet.

The observations by which this has been determined are detailed in the volumes for 1840, 1841, 1844, and 1845. It appeared that it was necessary to add 9″·41 to every reading of the theodolite. The clock was removed to the basement in 1864, having now nearly the same relative position to the lower declination-magnet which formerly it had to the upper. No correction is now applied to the upper declination-magnet.

5. Determination of the compound effects of the vertical-force-magnet and the horizontal-force-magnet on the declination-magnet.

The details applying to the effect of the horizontal-force-magnet and first vertical-force-magnet will be found in the volumes for 1840, 1841, 1844, and 1845. It appeared that it was necessary to subtract 55″·22 from all readings of the theodolite. In 1848 a new vertical-force-magnet was introduced, and the subtractive quantity was then found to be 42″·2. A few experiments in 1865 seemed to show that the correction is now 36″·9. No numerical correction has been applied.

6. Determination of the error of collimation for the plane glass in front of the boxes of the declination-magnet.

1867, January 1. The magnet was made to rest entirely on blocks. The micrometer head of the telescope was to the East. The plane glass has the word "top" engraved on it, and, in ordinary use, this word is always kept east. The cross-wire carried by the collimator of the magnet was observed with the engraved word alternately east and west. The result of 20 double observations was, that in the ordinary position of the glass 16″·7 is to be added to all readings.

7. Determination of the error of collimation of the magnet-collimator, with reference to the magnetic axis of the magnet.

1867, January 1. Observations were made by placing the declination-magnet

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in its stirrup, with its collimator alternately above and below, and observing the collimator-wire by the theodolite-telescope; the windlass of the suspending skein being so moved that the collimator in each observation was in the line of the theodolite-telescope. Seven pairs of observations were taken. The mean half excess of reading with collimator above, (its usual position) over that with collimator below was 24′. 31″·0. This value is used in the reductions for 1867.

8. Effect of the damper.

In the volume for 1841 observations are exhibited shewing that the oval copper bar, or damper, which then surrounded what is now the upper declination-magnet, had but little or no effect. Repeated observations, of less formal character, in succeeding years, have confirmed this result. The same bar has encircled the lower declination-magnet since the year 1865. The following observations were made in the year 1865, for ascertaining the effect of the damper on the lower declination-magnet under various circumstances.

On 1865, February 8 and 10, and March 2, the time of vibration of the magnet was observed:—

Mean of times with damper in usual position	23ˢ·888
Mean of times with damper reversed end for end	24ˢ·508
Mean of times when damper was removed	23ˢ·153

These seem to indicate a repulsion of the magnet by the damper, but the magnet came to rest so rapidly that the observations are very uncertain.

On several days from 1865, April 2 to May 12, observations were made for ascertaining the deflexion of the magnet produced by turning the damper through a small angle round a vertical axis, passing through its center.

DAMPER IN USUAL POSITION.

					′ ″
Damper turned through 2°	N. end towards E.,	increase of	western	declination	−1. 27
	N. end towards W.,	„	„	„	+1. 25
Damper turned through 4°	N. end towards E.,	„	„	„	−2. 16
	N. end towards W.,	„	„	„	+3. 11
Damper turned through 6°	N. end towards E.,	„	„	„	−3. 10
	N. end towards W.,	„	„	„	+2. 55
Damper turned through 8°	N. end towards E.,	„	„	„	−1. 22
	N. end towards W.,	„	„	„	+1. 45

DAMPER REVERSED END FOR END.

Damper turned through 2°	N. end towards E.,	increase of	western	declination	+0. 12
	N. end towards W.,	„	„	„	+0. 20
Damper turned through 4°	N. end towards E.,	„	„	„	0. 0
	N. end towards W.,	„	„	„	+0. 26
Damper turned through 6°	N. end towards E.,	„	„	„	+0. 5
	N. end towards W.,	„	„	„	+0. 5
Damper turned through 8°	N. end towards E.,	„	„	„	−0. 10
	N. end towards W.,	„	„	„	+0. 5

The first series shews clearly that the damper in its usual position drags the magnet; the second shews no certain effect. It seems that the damper possesses two kinds of

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Observations for determining the readings for the astronomical meridian were made on the following days in 1867:—January 4, 28; February 4, 14; March 5, 26; April 29; May 6, 24; June 12, 24; July 8, 27; August 2, 12, 22; September 20; October 26; November 6, 23; December 18. As a check on the continued steadiness of the theodolite, observations of a fixed mark (a small hole in a plate of metal above the Observatory Library, illuminated by a reflector of sky-light in the day and by a lamp at night,) have been taken about thirty times at nearly equal intervals through the year.

The following is a description of the method of making and reducing the eye-observations of the declination-magnet:—

A fine horizontal wire (as stated above) is fixed in the field of view of the theodolite-telescope, and another fine vertical wire is fixed to a wire-plate, moved right and left by a micrometer screw. On looking into the telescope, the cross of the magnetometer is seen; and during the vibration of the magnet, this cross is seen to pass alternately right and left. The observation is made by turning the micrometer till its wire bisects the image of the magnet-cross at the pre-arranged times, and reading the micrometer. The verniers of the horizontal circle are read.

The mean-time clock is kept very nearly to Greenwich mean time (its error being ascertained each day), and the clock-time for each determination is arranged beforehand. Chronometer M'Cabe 649 has usually been employed for observation.

If the magnet is in a state of disturbance, the first observation is made by the observer applying his eye to the telescope about one minute before the pre-arranged time; he bisects the magnet-cross by the micrometer wire at 45^s, and again at 15^s before that time, also at 15^s and 45^s after that time. The intervals of these four observations are therefore the same as the time of vibration of the magnet, and the mean of all the times is the same as the Greenwich pre-arranged mean time.

The mean of each pair of adjacent readings of the micrometer is taken (giving three means), and the mean of these three is adopted as the result. In practice, this is done by adding the first and fourth readings to the double of the second and third, and dividing the sum by 6.

Till 1866, January 23, the magnet was usually in a state of vibration; but since the introduction of the water damper on that day the number of instances of vibration has been very small. When it is found to be quite free from vibration, two bisections only of the cross are made, one about 15^s before the time recorded, the other about 15^s after that time, 30^s being nearly the time of a single vibration. (The lower magnet, furnished with the copper damper, never exhibits any troublesome vibrations.)

The adopted result is converted into arc, supposing $1^r = 1'.\ 34''{\cdot}8$, and the quantity thus deduced is added to the mean of the vernier-readings, from which is subtracted the constant given in article 9 of the permanent adjustments; the difference between this number and the adopted reading for the Astronomical South Meridian is taken;

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and thus is deduced the magnetic declination, which is used in determining the zero for the photographic register.

§ 3. *General principle of construction of Photographic self-registering Apparatus for continuous Record of Magnetic and other Indications.*

The general principle adopted for all the photographic instruments is the same. The photographic paper is wrapped round a glass or ebonite cylinder, (ebonite being adopted for the earth-current-apparatus and, in the year 1868, for all the other cylinders) and the axis of the cylinder is made parallel to the direction of the movement which is to be registered.

The following is the arrangement of glass cylinders, for the Declination and Horizontal Force. One glass cylinder with a hemispherical extremity (in all respects similar to those used as shades or protectors of small clocks, works of art, &c.), about $11\frac{1}{2}$ inches long in its cylindrical part, and about $14\frac{1}{2}$ inches in circumference, is covered internally with a black pigment, and is stopped at the open end by insertion in a metallic cap, in the center of which is a short spindle and winch-arm. Round this cylinder the photographic paper is wrapped, and the moisture on the photographic paper agglutinates its overlapping ends with sufficient firmness. The cylinder and mounted paper are then covered by another glass cylinder with hemispherical end, whose open end is fixed, by friction, on the rim of the metallic cap to which the inner cylinder is attached, a collar of tape being inserted between. In this state the cylinders are placed in their working-mounting; the short spindle in the cap, and the large cylinder near its hemispherical end, rest upon anti-friction-rollers, the axis of the cylinder being horizontal. The winch-arm is lodged in a fork at the end of the hour-hand of a timepiece, which is made for the purpose, not exceeding in size an ordinary box-chronometer, but with very strong wheels and powerful spring, and with duplex escapement. The mounting of the ebonite cylinders is the same except that they and their external glass cylinders have no hemispherical ends, and that both ends of the ebonite cylinders turn by spindles, which rest on anti-friction wheels; and that the clock-communication is made by a toothed wheel instead of a winch-arm. In order to avoid the ordinary shake of the hour-hand of a clock, due to the play of the motion-wheels under the dial, the hour-hand is placed upon the central axis, and the second wheel, which is usually placed in the center and carries the minute hand, is placed on one side. The peculiarities of the Vertical Force and Thermometer cylinders will be mentioned in their respective sections. The cylinders of the magnetic and earth-current registers turn in twenty-four hours: those of the thermometers, in forty-eight hours.

The light, by which the trace of each magnet is made, originates in a lamp (formerly of camphine, but, since 1849, of coal-gas charged with the vapour of coal-naphtha) placed slightly out of the direction of a straight line drawn from the concave-mirror of the magnet (to be mentioned shortly) to the center of the photographic sheet. Before the flame of the lamp is placed a small aperture, about $0^{in}{\cdot}3$ high and $0^{in}{\cdot}01$ broad, independent of the lamp, and supported by a part of the stone capping of the

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The concave mirror of the declination-magnet is 5 inches in diameter, and is above the top of the magnet-box. The distance of the light-aperture from the mirror is about 25·3 inches. The spot of light from the mirror is received on the south side of the cylinder, near its west end.

For the declination-magnet, the values, in minutes and seconds of arc, of movements of the photographic spot in the direction of the ordinate, are thus deduced from a geometrical calculation founded on the measures of different parts of the apparatus. The distance of the cylinder from the concave mirror is about $11^{ft.}\ 0^{in.}\cdot 1$, and a movement of 1° of the mirror produces a movement of 2° in the reflected ray. From this it is found that 1° of movement of the mirror is represented by 4·611 inches upon the photographic paper. A small scale of pasteboard is prepared, whose graduations correspond in value to minutes and seconds so calculated. The zero of the ordinate-scale is found in the following manner. The time-scale having been laid down as is already described, and actual observations of the position of the magnet having been made with the eye and the telescope, (as has been fully described above), at certain registered times, there is no difficulty (by means of these registered times) in defining the points of the photographic trace which correspond to the observed positions. The pasteboard scale being applied as an ordinate to one of these points, and being slid up and down till the scale reading which represents the reading actually taken by the eye-observation falls on that point, the reading of the scale where it crosses the line of abscissæ is immediately found. The various readings given by different observations, so long as there is no instrumental change, will scarcely differ, and may be combined in groups, and thus an adopted reading for the line of abscissæ may be obtained. From this, with the assistance of the same pasteboard scale, there will be laid down without difficulty a new line, parallel to that line of abscissæ whose ordinate would represent some whole number of degrees, or other convenient quantity.

§ 5. *Horizontal-Force-Magnet and Apparatus for observing it.*

The horizontal-force-magnet, furnished by Meyerstein of Göttingen, is, like the declination-magnet, 2 feet long, $1\frac{1}{2}$ inch broad, and about $\frac{1}{4}$ inch thick. For its support (as is mentioned above), a brick pier in the eastern arm of the Magnetic Observatory, built on the ground below the basement floor, rises through the floor of the upper room, and carries a slate slab, to the top of which a brass frame is attached, carrying two brass pulleys (with their axes in the same east and west line) in front of the pier, and two (in a similar position) at the back of the pier; these constitute the upper suspension-piece. A small windlass is attached to the back of the pier at a convenient height. The magnet-carrier consists of two parts. The upper part is a horizontal bar, $2\frac{1}{2}$ inches long, whose ends are furnished with verniers for reading the graduations of the torsion-circle (a portion of the lower part, to be mentioned below). On the upper side of this horizontal bar are two small pulleys with axes horizontal and at right angles to the vertical plane passing through the length of the bar: by these pulleys the apparatus is suspended, as will be mentioned. From the lower side of the horizontal bar, a vertical axis projects downwards through the center of the torsion-circle, in which it turns by stiff friction. The lower part of the magnet-carrier consists,

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first of the torsion-circle, a graduated circle about 3 inches in diameter: next, immediately below the central part of the torsion-circle, is attached (but not firmly fixed) a circular piece of metal from which projects downwards a frame that, by means of three cramps and screws, carries the photographic concave mirror, with the plane of its front under the center of the vertical axis: this circular piece of metal has a radial arm upon which acts a screw carried by the torsion-circle, for giving to the concave mirror small changes of azimuthal position. Thirdly, there is fixed to the torsion-circle, at the back of the mirror frame but not touching it, a bar projecting downwards, bent horizontally under the mirror frame and then again bent downwards, carrying the cramps in which the magnet rests, and, still lower, a small plane mirror, to which a fixed telescope is directed for observing by reflexion the graduations of a fixed scale (to be mentioned shortly). Under the two small pulleys mentioned above passes a skein of silk; its two branches rise up and pass over the front pulleys of the suspension-piece, then over its back pulleys, and then descend and pass under a single large pulley, whose axis is attached to a wire that passes down to the windlass. Supported by the two branches of the skein, the magnet swings freely, but the direction that it takes will depend on the angular position of its stirrup with respect to the upper horizontal bar; it is intended that the index should be brought to such a position on the torsion-circle that the two suspending branches should not hang in one plane, but should be so twisted that their torsion-force will maintain the magnet in a direction very nearly E. and W. magnetic (its marked end being W.); in which state an increase of the earth's magnetic force draws the marked end towards the N., till the torsion-force is sufficiently increased to resist it; or a diminution allows the torsion-force to draw it towards the S. The magnet, with its plane mirror, hangs within a double rectangular box (one box completely inclosed within another) covered with gilt paper, similar to that used for the declination-magnet; in its S. side there is one long hole, covered with glass, through which the rays of light from the scale enter to fall on the plane mirror, and the rays reflected by the mirror pass to the fixed telescope. The vertical rod (below the torsion-circle), which carries the magnet-stirrup, passes through a hole in the top of the box. Above the magnet box is the concave mirror above mentioned. The height of the brass pulleys of the suspension-piece above the floor is $11^{ft.}\ 8^{in.}\ 5$; that of the pulleys of the magnet-carrier is $4^{ft.}\ 2^{in.}\ 5$; and that of the center of the plane mirror is about $3^{ft.}\ 1^{in.}$. The distance between the branches of the silk skein, where they pass over the upper pulleys, is $1^{in.}\cdot 14$; at the lower part the distance between them is $0^{in.}\cdot 80$.

An oval copper bar (exactly similar to that for the declination-magnet), embraces the magnet, for the purpose of diminishing its vibrations.

The scale, which is observed by means of the plane mirror, is in a horizontal position, and is fixed to the South wall of the East arm of the Magnetic Basement. The numbers of the scale increase from East to West, so that when the magnet is inserted in the magnet-cell with its marked end towards the West, increasing readings

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The mean of several determinations gave 41°. 23′. The value adopted for the year 1867 was the same as that used in 1866, namely, 41°. 14′. The reading adopted for the torsion-circle, marked end of the magnet West, was 145° for the year.

2. Computation of the angle corresponding to one division of the scale, and of the variation of the horizontal force (in terms of the whole horizontal force) which moves the magnet through a space corresponding to one division of the scale.

It was found by accurate measurements, on 1864, November 3, that the distance from $51^{div.}$ on the scale to the center of the face of the plane mirror is $7^{ft.}\ 6^{in.}\cdot 84$, and that the length of $30^{div.}\cdot 85$ of the scale is exactly 12 inches; consequently the angle at the mirror subtended by one division of the scale is 14′. 43″·25, or, for one division of the scale, the magnet is turned through an arc of 7′. 21″·625.

The adopted angle of torsion as mentioned above is 41°. 14′; consequently the variation of horizontal force (in terms of the whole horizontal force) for a disturbance through one division of the scale, computed by the formula, "Cotan. angle of torsion × value of one division in terms of radius," is 0·0024428. This number has been used for the year 1867.

3. Determination of the compound effect of the vertical-force-magnet and the declination-magnet on the horizontal-force-magnet, when suspended with its marked end towards the West.

The details of the experiments, made while the old vertical-force-magnet was in use, will be found in the volumes for 1841, 1842, 1843, 1844, 1845. The effect was to increase the readings by $0^{div.}\cdot 487$. On mounting a new vertical-force-magnet in 1848, similar experiments were made, and the resulting number was $0^{div.}\cdot 45$. These quantities are totally unimportant in their influence on the registers of changes of horizontal force. No experiments have been made since the magnets were placed in the basement.

4. Effect of the damper.

In the year 1865, from May 17 to May 25, observations were made for ascertaining the deflection of the magnet produced by turning the damper through a small angle round a vertical axis passing through its center.

DAMPER IN USUAL POSITION.

Damper turned through 2°	W. end towards S., increase of scale-reading	.....	$-0^{div.}\cdot 251$
	W. end towards N., „ „	.....	$+0^{div.}\cdot 050$
Damper turned through 4°	W. end towards S., „ „	.....	$-0^{div.}\cdot 34$
	W. end towards N., „ „	.....	$+0^{div.}\cdot 16$

DAMPER REVERSED END FOR END.

Damper turned through 2°	W. end towards S., increase of scale-reading	.....	$-0^{div.}\cdot 15$
	W. end towards N., „ „	.....	$-0^{div.}\cdot 02$
Damper turned through 4°	W. end towards S., „ „	.....	$-0^{div.}\cdot 12$
	W. end towards N., „ „	.....	$+0^{div.}\cdot 08$

On 1865, July 25, observations were made to ascertain whether the effect of an external deflecting cause is the same with the damper present and the damper removed.

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A small magnet was placed with its marked end pointing N. at the distance 4 feet S. of the unmarked end of the horizontal-force-magnet, deflecting the magnet through $1^{div.}$ of the scale, and the scale-readings were observed with the damper in its usual place and the damper away. Three experiments were made, containing twenty-four observations of position. Not the smallest difference of position of the horizontal-force-magnet was produced by the presence or absence of the damper. The observations were very easy, and the result is certain.

No experiments on the damper have been made since 1865.

5. Determination of the correction for the effect of temperature on the horizontal-force-magnet.

In the Introduction to the volume of Magnetical and Meteorological Observations for 1847 will be found a detailed account of observations made in the years 1846 and 1847 for determination of this element. The principle adopted was that of observing the deflection which the magnet (to be tried) produces on another magnet; the magnet (to be tried) being carried by the same frame which carries the telescope that is directed to the plane mirror attached to the other magnet, and which also carries the scale that is viewed in these experiments by reflection in that plane mirror. The rotation of the frame was measured by a graduated circle about 23 inches in diameter. The magnet (to be tried) was always on the eastern side of the other magnet. It was enclosed in a copper trough, which was filled with water at different temperatures. One end of the magnet (to be tried) was directed towards the other magnet. The values found for correction of the results as to horizontal force determined with the magnet at temperature $t°$ in order to reduce them to what they would have been if the temperature of the magnet had been 32°, expressed as multiples of the whole horizontal force, were,*

When the marked end of the magnet (to be tried) was West,

$$0{\cdot}00007137\ (t-32) + 0{\cdot}000000898\ (t-32)^2.$$

When the marked end of the magnet (to be tried) was East,

$$0{\cdot}00009050\ (t-32) + 0{\cdot}000000626\ (t-32)^2.$$

The mean, or

$$0{\cdot}00008093\ (t-32) + 0{\cdot}000000762\ (t-32)^2$$

has been embodied in tables which have been used in the computation of the "Reduction of Magnetic Observations 1848–1857," attached to the Volume of Observations 1859, and in the computation for "Days of Great Magnetic Disturbance 1841–1857," attached to the volume for 1862. The same formula has been employed in the Reduction of Magnetic Observations 1858–1863, published in the present volume.

In the year 1864 observations were made for ascertaining the temperature-coefficient by heating the magnet by hot air. The deflecting magnet was placed in a copper box planted upon the top of a copper gas-stove, whose heat could be regulated by manipu-

* By inadvertence in printing the Introduction 1847, the letter t has been used in two different senses.

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magnet is an iron frame, to which is attached, by clamps and pinching screws, a steel knife-edge, about 8 inches long. The steel knife-edge passes through an aperture in the magnet. The axis of the magnet is as nearly as possible transverse to the meridian, its marked end being E. The axis of vibration is as nearly as possible N. and S. To the southern end of the iron frame, and projecting further south than the end of the knife-edge, is fixed a small plane mirror, whose plane makes with the axis of the magnet an angle of $52\frac{3}{4}^{\circ}$ nearly. The fixed telescope (to be mentioned) is directed to this mirror, and by reflexion at the surface of the mirror it views a vertical scale (to be mentioned shortly). The height of this mirror above the floor is about $2^{ft.}\,10^{in.}\,6$. Before the introduction of the photographic methods, the magnet was placed in a perforation of a brass frame midway between its knife-edges. But since the photographic method was introduced, the magnet has been placed excentrically; the distance of its southern face from the nearest end of the southern knife-edge being nearly 2 inches, and a space of $4\frac{1}{2}$ inches in the northern part of the iron frame being left disposable. In this disposable space there is attached to the iron frame by three clips a concave mirror of speculum-metal, with its face at right angles to the length of the magnet; it is used in the photographic system (shortly to be described). Near the north end of the iron frame are fixed in it two screw stalks, upon which are adjustible screw-weights; one stalk is horizontal, and the movement of its weight affects the position of equilibrium of the magnet (which depends on the equilibrium between the moments of the vertical force of terrestrial magnetism on the one hand and of the magnet's center of gravity on the other hand); the other stalk is vertical, and the movement of its weight affects the delicacy of the balance, and varies the magnitude of its change of position produced by a change in the vertical force of terrestrial magnetism.

The whole is inclosed in a rectangular box. This box is based upon the stone block above mentioned; and in it, in a space separated from the rest by a thin partition, the magnet can vibrate freely in the vertical plane. In the south side of the box is a hole covered by glass, through which pass the rays of light from the scale to the plane mirror, and through which they are reflected from the plane mirror to the telescope. And at the east end is a large hole covered by glass, through which passes the light from the lamp to the concave mirror, and through which it is reflected to the photographic cylinder (to be described hereafter).

The telescope is fixed to the west side of the brick pier which supports the stone pier in the upper room carrying the declination-theodolite. Its position is symmetrical with that of the telescope by which the horizontal-force-magnet is observed; so that a person seated in a convenient position can, by an easy motion of the head left and right, observe the vertical-force and horizontal-force-magnets.

The scale is vertical: it is fixed to the pier which carries the telescope, and is at a very small distance from the object-glass of the telescope. The wire in the field of view of the telescope is horizontal. The telescope being directed towards the mirror, the observer sees in it the divisions of the scale passing upwards and downwards over

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the fixed wire as the magnet vibrates. The numbers of the scale increase from top to bottom; so that, when the magnet is placed with its marked end towards the East, increasing readings (as seen with the fixed telescope) denote an increasing vertical force.

OBSERVATIONS RELATING TO THE PERMANENT ADJUSTMENTS OF THE VERTICAL-FORCE-MAGNET.

1. Determination of the compound effect of the declination-magnet, the horizontal-force-magnet, and the iron affixed to the electrometer pole, on the vertical-force-magnet.

The experiments applying to the magnets are given in the volumes for 1840–1841 to 1845: and those applying to the electrometer pole in the volume for 1842. It appeared that no sensible disturbance was produced on the magnet formerly in use. No experiments have been made with the new magnet.

2. Determination of the time of vibration of the vertical-force-magnet in the vertical plane.

In the year 1867, vibrations of the vertical-force-magnet were observed on 147 different days, and with readings of various divisions of the scale. The mean time of vibration adopted from January 1 to September 30 was $12^{s}\cdot51$, and from October 1 to the end of the year $12^{s}\cdot25$.

3. Determination of the time of vibration of the vertical-force-magnet in the horizontal plane.

1866, December 31. The magnet with all its apparatus was suspended from a tripod in the Record Room, its broad side being in a plane parallel to the horizon; therefore, its moment of inertia was the same as when it is in observation. A telescope, with a wire in its focus, was directed to the reflector carried by the magnet. A scale of numbers was placed on the floor of the Record Room, at right angles to the long axis of the magnet, or parallel to the mirror. The magnet was observed only at times when it was swinging through a small arc. From 300 vibrations, the mean time of one vibration $=15^{s}\cdot1873$. This number is used through the year 1867.

4. Computation of the angle through which the magnet moves for a change of one division of the scale; and calculation of the disturbing force producing a movement through one division, in terms of the whole vertical force.

The distance from the scale to the mirror is 186·07 inches, and each division of the scale $=\frac{12}{30\cdot85}$ inches. Hence the angle which one division subtends, as seen from the mirror, is $7'.11''\cdot19$; and therefore the angular movement of the normal to the mirror, corresponding to a change of one division of the scale, is half this quantity, or $3'.35''\cdot60$.

But the angular movement of the normal to the mirror is not the same as the angular movement of the magnet; but is less in the proportion of unity to the cosine of the angle which the normal to the mirror makes with the magnet, or in the proportion of unity to the sine of the angle which the plane of the mirror makes with the

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Robinson's and other needles. But the form of the observing apparatus is greatly modified, in order to secure the following objects :—

I. To obtain a microscopic view of the points of the needles, as in the instruments introduced by Dr. Lloyd and Lieut.-General Sabine.

II. To possess at the same time the means of observing the needles while in a state of vibration.

III. To have the means of observing needles of different lengths.

IV. To give an illumination to the field of view of each microscope, directed from the side opposite to the observer's eye, so that the light may enter past the point of the needle into the object glass of the microscope, forming a black image of the needle-point in a bright field of view.

V. To give facility for observing by day or night.

With these views, the following form is given to the apparatus :—

The needle, and the bodies of the microscopes, are inclosed in a square box. The base of the box, two vertical sides, and the top, are made of gun-metal (carefully selected to insure its freedom from iron); but the sides parallel to the plane of vibration of the needle are of glass. Of the two glass sides, that which is next the observer is firmly fixed; it is hereafter called "the graduated glass-plate." The other glass side can be withdrawn, to open the box, for inserting the needle, &c.

An axis, whose length is perpendicular to the plane of vibration of the needles, and is as nearly as possible in the line of the axis of the needle, supported on two bearings (of which one is cemented in a hole in the graduated glass-plate, the other being upon a horizontal bar near to the agate support of the needle-axis), carries a transverse arm, about 11 inches long, or rather two arms, projecting about $5\frac{1}{2}$ inches on each side of the axis. Each of these projecting arms has a long opening, or slot, about 1 inch wide, extending from the neighbourhood of the center-work nearly to the end of the arm. Through this opening the tube of a microscope passes, in a direction parallel to the axis of the needle, and is firmly fixed by a shoulder-bearing on one side of the arm, and a circular nut, working in a thread cut upon the microscope-tube, on the other side of the arm. The microscope can thus be fixed at any distance from the central axis, within the limits of the length of the projecting arm. In 1863, between February 24 and May 11, the slot for a single moveable microscope on each side was changed for three fixed microscopes on each side, adapted in position to the lengths of the needles to be mentioned shortly.

The microscope-tube thus carried is not the entire microscope, but so much as contains the object-glass and the field-glass. Upon the plane side of the field-glass (which is turned towards the object-glass), a series of parallel lines is engraved by etching with fluoric acid. The object-glass is so adjusted that the image of the needle-point is formed upon the plane side of the field-glass; and thus the parallel lines can be used for observing the needle in a state of vibration; and, one of them being

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adopted as standard, the lines can be used for reference to the graduated circle (to be mentioned). All this requires that there be an eye-glass also for the microscope.

The axis of which we have spoken is continued through the graduated glass-plate, and there it carries another transverse arm parallel to the former, and generally similar to it. In each part of this slides a short eye-piece, carrying the eye-glass. In 1863, at the time mentioned above, the slotted arm and moveable eye-socket were changed for an arm with three sockets and eye-glasses. Thus, reckoning from the observer's eye, there are the following parts:—

(1.) The eye-glass.

(2.) The graduated glass-plate (its graduations, however, not intervening in this part of the glass, the graduated circle being so large as to include all the microscopes).

(3.) The field-glass, on the further surface of which the parallel lines are engraved.

(4.) The object-glass.

(5.) The needle.

(6.) The removeable glass side of the box.

(7.) The illuminating reflector, to be described hereafter.

The optical part of the apparatus being thus described, we may proceed to speak of the graduated circle.

The graduations of the circle (whose diameter is about $9\frac{3}{4}$ inches) are etched on the inner surface of the graduated glass-plate. These divisions (as well as the parallel lines on the field glasses of the microscopes) are beautifully neat and regular, and are, I think, superior to any that I have seen on metal. The same piece of metal, which carries the transverse arms supporting the microscope bodies, carries also two arms with verniers for reading their graduations. These verniers (being adapted to transmitted light) are thin plates of metal, with notches instead of lines. The reading of the verniers is very easy. The portion of the axis which is external to the graduated glass-plate (towards the observer), and which has there, as already stated, two arms for carrying the microscope eye-glasses, has also two arms for carrying the lenses by which the verniers and glass-plate graduations are viewed. These four arms are the radii of a circle, which can be fixed in position by a clamp, attached to the gun-metal casing of the graduated glass-plate, and furnished with the usual slow-motion screw.

The entire system of the two arms carrying the microscope-bodies, the two arms carrying the microscope eye-glasses, the two arms carrying the verniers, and the two arms carrying the reading-glasses for the verniers, is turned rapidly by means of a button on the external side of the graduated glass-plate, or is moved slowly by means of the slow-motion screw just mentioned.

It now remains only to describe the illuminating apparatus. On the outside of the removeable glass plate, there are supports for the axis of a metallic circle turning in a plane parallel to the plane of needle-vibration. This circle has four slotted radii, and in these slots or openings there slide small frames carrying prismatic glass reflectors, each of which can turn on an axis, in the plane of the circle but trans-

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The correction of the magnetic power for temperature t_0 of Fahrenheit, reducing all to 35° of Fahrenheit, is

$$0{\cdot}000131261\,(t_0-35) + 0{\cdot}000000259\,(t_0-35)^2$$

A_1 is $\frac{1}{2}$(distance)^3 × sine deflection, corrected by the two last-mentioned quantities, for distance 1 foot; A_2 is the similar expression for distance 1·3 foot; A'_2 is $\frac{A_2}{(1{\cdot}3)^2}$ P is $\frac{A_1-A_2}{A_1-A'_2}$. A mean value of P is adopted from various observations; then $\frac{m}{X}=A_1\times\left(1-\frac{P}{1}\right)$ for smaller distance, or $=A_2\times\left(1-\frac{P}{1{\cdot}69}\right)$ for larger distance. The mean of these is usually adopted for the true value of $\frac{m}{X}$.

For computing the value of mX from observed vibrations, it is necessary to know K, the moment of inertia of the magnet as mounted. The value of log. π^2K furnished by Mr. Stewart is 1·66073 at temperature 30° and 1·66109 at temperature 90°. Then, putting T for the time of the magnet's vibration as corrected for induction, temperature, and torsion-force, the value of mX is $=\frac{\pi^2K}{T^2}$. From the combination of this value of mX with the former value of $\frac{m}{X}$, m and X are immediately found.

It appears, from a comparison of observations given in the Introduction to the *Magnetical and Meteorological Observations*, 1862, that the determinations with the Old Instrument (in use to 1861) ought to be diminished by $\frac{1}{117}$ part, to make them comparable with those of the Kew Unifilar.

The computation of the values of m and X has, to the year 1857, been made in reference to English measure only, using the foot and the grain as the units of length and weight; but, for comparison with foreign observations of the Absolute Intensity of Magnetism, it is desirable that X should be expressed also in reference to French measure, in terms of the millimètre and milligramme. If an English foot be supposed equal to α times the millimètre, and a grain be equal to β times the milligramme, then it is seen that, for the reduction of $\frac{m}{X}$ and mX to French measure, these must be multiplied by α^3 and $\alpha^2\beta$ respectively. Hence X^2 must be multiplied by $\frac{\beta}{\alpha}$, and X by $\sqrt{\frac{\beta}{\alpha}}$. Assuming that the mètre is equal to 39·37079 inches, and the gramme equal to 15·43249 grains, log. $\sqrt{\frac{\beta}{\alpha}}$ will be found to be $=9{\cdot}6637805$, and the factor for reducing the English values of X to French values will be 0·46108 or $\frac{1}{2{\cdot}1689}$. The values of X in French measure thus derived from those in English measure are given in the proper table.

§ 11. *Explanation of the Tables of Indications of the Magnetometers.*

The Indications are derived entirely from the measures of the ordinates of the Photographic Curves, except in a few instances in which the results are marked with an asterisk, in which case the results are those given by eye-observations, usually because the photographic process has failed.

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Telescope-observations of the Magnetometers have usually been made four times every day, except on Sundays, on which days two or three observations only have been taken; but, though these observations are employed in forming the base lines on the photographic sheets, their immediate results are not necessarily given in the Tables.

For each photographic record, a new base-line, representing a convenient reading in round numbers of the element to which it applies, has been drawn on the sheet. Then the Assistant, who is charged with the translation of the curve-ordinates into numbers, remarks the salient points of the curve, or the points which if connected by straight lines would produce a polygon not sensibly differing from the photographic curve; to each of these he applies the pasteboard scale proper for the element under consideration; the base of the pasteboard scale determines the time on the time-scale, and the reading of the pasteboard scale for the point of the photographic curve gives the quantity which is to be added to the value for the new base-line. The ordinate-reading so formed is printed without alteration in the Tables. It is particularly to be remarked that the indications for horizontal force and vertical force are *not corrected for temperature.*

In measuring the ordinates of the Vertical Force Curves, the same difficulty that is mentioned in preceding volumes has still occasionally, though rarely, been felt. Apparently without cause, the curve is dislocated; one part being raised above or depressed below the contiguous part, in the direction of the ordinate, usually by small quantities. In all cases the displacement is accompanied by vibration, the original position being at the extremity of the arc of vibration, and the new position being at its center; showing that there has been no want of delicacy in the movement, and that the change is precisely the same as would be caused by the quiet application of a small weight upon one end of the magnet.

In translating the ordinates into numbers on these occasions, two ordinates have been taken for the same abscissa; these are connected, in the printed Indications, by a brace, and the difference of the numbers indicates the amount of the disturbance.

§ 12. *Wires and Photographic self-registering Apparatus for continuous Record of Spontaneous Terrestrial Galvanic Currents.*

In order to obtain an exhibition of the spontaneous galvanic currents which in some measure are almost always discoverable in the earth, and which occasionally are very powerful, it was necessary to extend two insulated wires from an earth connexion at the Royal Observatory, in two directions nearly at right angles to each other, to considerable distances, where they would again make connexion with the earth. By the kindness of the Directors of the South Eastern Railway Company, to whom the Royal Observatory has on several occasions been deeply indebted, two connexions are made; one to a station near Dartford, at the direct distance $9\frac{3}{4}$ miles nearly, in azimuth

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found (the three auxiliaries giving accordant results) that the readings of the barometer, in its new state, required a correction of $-0^{in}\cdot006$. This is applied in the printed observations commencing with 1866, August 30.

All observations of this barometer have been corrected for the difference of temperature of the mercury in the tube at the time of observation from 32°, by the application of the corrections contained in the table for barometers whose scales are engraved upon a rod of brass reaching from the level of the mercury to the vernier. (See the report of the Committee of Physics and Meteorology approved by the Royal Society.)

The height of the cistern above the mean level of the sea is 159 feet. This element is founded upon the determination of Mr. Lloyd, in the *Phil. Trans.*, 1831; the elevation of the cistern above the brass piece inserted in a stone in the transit-room (to which Mr. Lloyd refers) being $5^{ft}.2^{in}$.

The barometer has been read at 21^h, 0^h, 3^h, 9^h (astronomical), on every day, excepting on Sundays, and on Good Friday and Christmas Day, on which days fewer observations have been taken. Every reading has been reduced to the reading which would have been obtained at the temperature 32° of the mercury and scale, by application of the correction given in Table II. (pages 82 to 87) of the Report of the Committee of Physics of the Royal Society. The mean of the reduced readings has then been taken for each civil day, and finally converted into mean daily reading, by application of the correction inferred from Mr. Glaisher's paper in the *Philosophical Transactions*, 1848, Part I, Table I, page 127.

In the printed record of the barometrical and all other meteorological observations, the day is to be understood, generally, as defined in civil reckoning.

§ 14. *Photographic self-registering Apparatus for continuous Record of the Readings of the Barometer.*

The Photographic self-registering Apparatus for continuous Record of Magnetic Vertical Force is furnished (as has been stated) with a vertical cylinder covered with photographic paper and revolving in 24 hours. North of the surface of this cylinder, at the distance of about 30 inches, is a large syphon barometer, the bore of the upper and lower extremities of its arms being about 1·1 inch. A glass float partly immersed in the quicksilver of the lower extremity is partially supported by a counterpoise acting on a light lever (which turns on delicate pivots), so that the wire supporting the float is constantly stretched, leaving a definite part of the weight of the float to be supported by the quicksilver. This lever is lengthened to carry a vertical plate of opaque mica with a small aperture, whose distance from the fulcrum is nearly eight times the distance of the point of attachment of the float wire, and whose movement, therefore, is nearly four times the movement of the column of a cistern-barometer. Through this hole the light of a lamp, collected by a cylindrical lens, shines upon the photographic paper.

The scale of time is established by means of occasional interruptions of the light,

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and the scale of measure is established by comparison with occasional eye-observations.

This barometer was brought into use in 1848, but its indications were not satisfactory till the mercury was boiled in the tube by Messrs. Negretti and Zambra on 1853, August 18, since which time they have appeared unexceptionable. Results of the indications are printed in the *Maxima and Minima of the Barometer*, near the end of the Meteorological Results.

§ 15. *Thermometers for ordinary Observation of the Temperature of the Air and Evaporation.*

The Dry-Bulb Thermometer, the Wet-Bulb Thermometer, the Maximum Self-Registering Thermometers, both dry and wet, and the Minimum Self-Registering Thermometers, dry and wet, all for determination of the temperature of the air and of evaporation, are mounted on a revolving frame whose fixed vertical axis is planted in the ground. From the year 1846 to 1863 the post forming the vertical axis was about 23 feet south (magnetic) of the S.S.E. angle of the south arm of the Magnetic Observatory; in 1863 it was moved to a position about 35 feet south (astronomical) of the south angle. A frame revolves on this post, consisting of a horizontal board as base, of a vertical board projecting upwards from it connected with one edge of the horizontal board, and of two parallel inclined boards (separated about three inches) connected at the top with the vertical board, and at the bottom with the other edge of the horizontal board. The outer inclined board is covered with zinc. The air passes freely between all these boards.

The dry and wet-bulb thermometers are attached to the outside, and near the center of the vertical board; the maximum and minimum thermometers for air towards one vertical edge, and those for evaporation towards the other vertical edge, with their bulbs at almost the same level, and near to those of the dry and wet-bulb thermometers; their bulbs are about 4 feet above the ground and projecting from 2 inches to 3 inches below the horizontal board. Above the thermometers is a small projecting roof to protect them from rain. The frame is always turned with the inclined side towards the sun. It is presumed that the thermometers are thus sufficiently protected.

The graduations of all the thermometers used in the Royal Observatory rest fundamentally upon those of a Standard Thermometer, the property of Mr. Glaisher, which derives its authority from comparison with original thermometers constructed by the late Rev. R. Sheepshanks about the years 1840–1843, in the course of his preparations for the construction of the National Standard of Length. The whole of the radical determinations of Freezing Point, Boiling Point, and Subdivision of Volume of Tube, were made by Mr. Sheepshanks with the utmost care: it is believed that these were the first original thermometers that had been constructed in England for many years. Mr. Glaisher's thermometer has been adopted as the standard of reference for all the thermometers used in the Royal Observatory since 1840.

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the glass up and passes freely; but in descending it is unable to pass the glass, and the lower mass of mercury descends, leaving a vacant space below the glass, and leaving a portion of the mercury above it. The piece of glass operates as an efficient valve. The corrections to the readings of this thermometer are as follows:—

Between	32°	and 54°	subtract 0°·3
	54	and 72	0·2
	72	and 80	0·1
	80	and 93	0·0
	93	and 96	add 0·1
	96	and 99	0·2
	99	and 102	0·4

There is a similar thermometer for the maximum wet-bulb reading (Negretti and Zambra No. 7537): no corrections have been applied to its readings.

The minimum self-registering thermometers are alcohol thermometers, of the construction known as Rutherford's. A sliding glass index allows the alcohol in rising to pass above it, but is drawn down by the peculiar action of the bounding surface of the fluid when it sinks. The readings of that which gives the minimum temperature of the air require the following corrections, viz.:—

Below	12°		add 0°·2
Between	13	and 18	0·3
	19	and 25	0·4
	26	and 35	0·5
	36	and 39	0·6
	40	and 43	0·7
	44	and 47	0·8
	48	and 50	0·9
	51	and 54	1·0
	55	and 57	1·1
	58	and 61	1·2
	62	and 64	1·3
	65	and 67	1·4
	68	and 70	1·5
	71	and 74	1·6
	75	and 77	1·7
	78	and 80	1·8

The readings of the minimum wet-bulb thermometer require the following corrections:—

Between	31°	and 37°	add 1°·0
	37	and 78	0·7

The mean daily values of dry thermometer in the printed columns are found by combining two results derived from different sources. The first and simpler result

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is the mean of the maximum and minimum, corrected by a small quantity depending on the month, given in Table III. of Mr. Glaisher's paper in the *Philosophical Transactions*, 1848, page 130. The second result is formed by taking the means of the four eye-observations at 21^h, 0^h, 3^h, 9^h, and applying a correction thus investigated. The daily range being found by taking the difference between the maximum and minimum, this daily range is multiplied by the mean of the factors in Table IV. of Mr. Glaisher's paper before mentioned corresponding to the hours of observation; the application of this correction to the mean of the eye-observations gives the second result. (It is evident that this process is applicable to any number of eye-observations.) These two results are then combined to form a mean, weights being given proportional to the number of observations contributing to each result.

For the mean daily value of dew point, the usual process is,—by observing the difference between dry and wet thermometers, and by use of the table of factors printed in page *xxxix* above, to form the difference between air-temperature and dew point at each of the hours of reading; to take the mean of the deduced dew-points, and to apply a correction which is the mean of the corrections in Mr. Glaisher's Table VIII. for the several hours of observation. Sometimes, however, the following process is used. The correction for diurnal range applicable to the mean of the eye-observations of the dry thermometer having been found (as is described above), this correction is multiplied by a fraction, whose numerator is the mean of corrections to wet bulb thermometer in Table VII. for the hours of observations, and whose denominator is the mean of corrections to dry thermometer in Table II. for the same hours; and thus a correction is found which is applied to the mean of the eye-observations of wet bulb thermometer, to form the mean wet bulb for the day. Then by use of the mean dry bulb reading for the day and the mean wet bulb reading for the day and the table of factors above, the mean dew point for the day is formed.

§ 16. *Photographic self-registering Apparatus for continuous Record of the Readings of the Dry-Bulb and Wet-Bulb Thermometers.*

About 28 feet south (magnetic) of the south-east angle of the south arm of the Magnetic Observatory, and about 25 feet east of the thermometers for eye-observations, is a shed 10 ft. 6 in. square, standing upon posts 8 feet high, under which are placed the photographic thermometers, the dry-bulb thermometer towards the east, and the wet-bulb thermometer towards the west. The bulbs of the thermometers are 8 inches in length, and 0·4 inch internal bore, and their centers are about 4 feet above the ground. The bulb of one of the thermometers is covered with muslin throughout its whole length, which is kept moist by means of capillary passage of water along cotton wicks leading to a vessel filled with water.

There are small adjustments admitting the raising or dropping of the thermometers, so that the register of their changing readings may be on a convenient part of the

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particularly those of Nos. 3 and 4, or the thermometers sunk to the depth of 6 feet and 3 feet.

In 1857, June 22, Messrs. Negretti and Zambra removed from Nos. 3 and 4 a quantity of fluid corresponding to the extent of 5° on their scales, and the scales of these two thermometers were then lowered by that linear extent, making the readings the same as before. Their ranges are now, respectively, 44° to 62°·5, and 39°·2 to 69°·5.

In subsequent years it was found that the amount of fluid removed was somewhat too great, for now at the lower end of the scale the 6-foot thermometer sometimes falls below the limit of its scale or 44°; and the 3-foot thermometer below 39°·0; in which cases the alcohol sinks into the capillary tube.

The readings at the early part of the series were at times defective at high temperatures, but always complete at low temperatures; now, they are generally complete at high temperatures, and are at times defective at low temperatures. The two combined, however, will enable us to complete all readings.

These thermometers are read once a day, at noon, and the readings appear in the printed volumes as read from their scales without correction.

§ 19. *Thermometers immersed in the Water of the Thames.*

The self-registering maximum and minimum thermometers for determining the highest and lowest temperatures of the water of the Thames are by Messrs. Negretti and Zambra, and are observed every day at 9^h a. m.

A strong wooden trunk is firmly fixed to the side of the Dreadnought Hospital Ship, about 5 feet in length, and closed at the bottom; the bottom and the sides, to the height of 3 feet, are perforated with a great number of holes, so that the water can easily flow through; the thermometers are suspended within this trunk so as to be about 2 feet below the surface of the water, and 1 foot from the bottom of the trunk.

The regular observations are made under the superintendence of the Medical Officers of the Ship.

These thermometers were not read on March 25, June 3 and 18, July 2, 7, and 8, August 5, 17, and 18, September 3 and 9, October 18, 24, and 27, November 4, 15, 21 and 30, December 18, 25 to 31. The thermometer for minimum temperature was out of order on January 15.

The index-error corrections to these thermometers were:—

For the maximum thermometer,	subtract 1°·2
For the minimum thermometer,	subtract 0°·3

§ 20. *Osler's Anemometer.*

This anemometer is self-registering: it was made by Newman, on a plan furnished by A. Follett Osler, Esq., F.R.S., but has received several changes since it was origi-

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nally constructed. A large vane, which is turned by the wind, and from which a vertical spindle proceeds down nearly to the table in the north-western turret of the ancient part of the Observatory, gives motion by a pinion upon the spindle to a rack-work carrying a pencil. This pencil makes a mark upon a paper affixed to a board which is moved uniformly in a direction transverse to the direction of the rack-motion. The movement of the board is effected by means of a second rack connected with the pinion of a clock. The paper has lines printed upon it corresponding to the positions which the pencil must take when the direction of the vane is N., E., S., or W.; and also has transversal lines corresponding to the positions of the pencil at every hour. The first adjustment for azimuth was obtained by observing from a certain point the time of passage of a star behind the vane-shaft, and computing from that observation the azimuth; then on a calm day drawing the vane by a cord to that position, and adjusting the rack, &c., so that the pencil position on the sheet corresponded to that azimuth.

This construction originally arranged by Mr. Osler was in use till the middle of 1866, when the following modifications were made in it by Mr. Browning:—

The vane-shaft was made to bear upon anti-friction-rollers running in a cup of oil. For elucidation of the following description of the apparatus which it carries, I refer to Figure 3 on the engraving at the end of the Introduction to the volume of 1866. To the vane-shaft is attached a rectangular frame C, which rotates with the vane. To this frame are firmly attached the ends of four strong springs D, which rise from the point of attachment in a vertical direction, are then bent so as to descend below the frame C, and are then bent upwards so as to rise a short distance, where they terminate, each of them thus forming a large hook. To the interior of each strong spring, near to its upper bend, is affixed a very weak spring, which descends free into the lower bend or hook of the strong spring, so that its lower end may be moved by a light pressure till it reaches and takes bearing against the bent-up part of the strong spring, after which it cannot be further moved without moving the strong spring, and will therefore require much greater pressure. The four ends of these four light springs carry the circular pressure-plate A by the following connexions. The two which are farthest from A, or which are below the wide part of the vane, are united by a light horizontal cross-bar G; and from the ends of these springs proceed four light bars E, which are attached to points of the pressure-plate A, near its circumference. The two ends of light springs which are nearest to A are also united by a light horizontal cross bar, which is attached to a projection from the center of the plate A. (The diagonal lines upon A, in the diagram, represent indistinctly two strengthening edge-bars upon the pressure-plate, and the projection above-mentioned is fixed to their intersection.) The weight of the pressure-plate thus rests entirely on the slender springs; it is held steadily in position, as regards the opposition to the wind, and it moves without sensible friction. A light wind drives it through a considerable space, until the ends of one pair of light springs touch their large hooks; then for every additional pound of pressure the movement is smaller, till

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tumbling bucket, fixed in a globe under the receiver. When full, the bucket falls over, throwing the water into a small pipe at the lower part of the globe; the water completely fills the bore of the pipe; its descent causes an imperfect vacuum in the globe, sufficient to cause a draught in the longer leg of the syphon, and the whole contents run off. After leaving the globe, the water is carried away by a waste-pipe attached to the building. The springs then shorten and raise the receiver. The ascent and descent of the water-vessel move a radius-bar which carries a pencil; and this pencil makes a trace upon the paper carried by the sliding board of the self-registering anemometer. As the trace is rather long in proportion to the length of the radius-bar, the bar has now been furnished by Mr. Browning with a "parallel motion," which makes the trace sensibly straight.

The scale of the printed paper was adjusted by repeatedly filling the water-vessel until it emptied itself, then weighing the water, and thus ascertaining its bulk, and dividing this bulk by the area of the surface of the rain receiver.

A second gauge, with an area 77 square inches nearly, is placed close to the preceding, the receiving surface of both being on the same horizontal plane.

A third gauge is placed on the roof of the Octagon room, at 38 feet $4\frac{1}{2}$ inches above the ground, and 193 feet $2\frac{1}{2}$ inches above the mean level of the sea. It is a simple cylinder gauge, 8 inches in diameter and about $50\frac{1}{4}$ inches in area. The height of the cylinder is $13\frac{1}{2}$ inches; at the depth of 1 inch from the top within the cylinder is fixed a funnel (an inverted cone) of 6 inches perpendicular height; with the point of this funnel is connected a tube, $\frac{1}{5}$ of an inch in diameter, and $1\frac{1}{2}$ inch in length; $\frac{3}{4}$ of an inch of this tube is slightly curved, and the remaining $\frac{3}{4}$ of an inch is bent upwards, terminating in an aperture of $\frac{1}{8}$ of an inch in diameter. By this arrangement, the last few drops of water remain in the bent part of the tube, and the water is some days evaporating. The upper part of the funnel or bore of the cone is connected with a brass ring, which has been turned in a lathe, and this is connected with a circular piece 6 inches in depth, which passes outside the cylinder, and rests in a water joint, attached to the inner cylinder, and extending all round.

A fourth gauge is placed on the top of the Library; it is a funnel, whose top has a diameter of 6 inches; its exposed area is $28\frac{1}{4}$ inches nearly. The receiving surface of the gauge is 22 feet 4 inches above the ground, and 177 feet 2 inches above the mean level of the sea.

A fifth gauge is planted on the roof of the Photographic Thermometer shed, 10 feet above the ground, and 164 feet 10 inches above the mean level of the sea. Its construction is the same as that of the third gauge.

A sixth gauge is a self-registering rain-gauge on Crosley's construction, made by Watkins and Hill. The surface exposed to the rain is 100 square inches. The collected water falls into a vibrating bucket, whose receiving concavity is entirely above the center of motion, and which is divided into two equal parts by a partition whose plane passes through the axis of motion. The pipe from the rain-receiver ter-

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minates immediately above the axis. Thus that part of the concavity which is highest is always in the position for receiving water from the pipe. When a certain quantity of water has fallen into it, it preponderates, and, falling, discharges its water into a cistern below; then the other part of the concavity receives the rain, and after a time preponderates. Thus the bucket is kept in a state of vibration. To its axis is attached an anchor with pallets, which acts upon a toothed wheel by a process exactly the reverse of that of a clock-escapement. This wheel communicates motion to a train of wheels, each of which carries a hand upon a dial-plate; and thus inches, tenths, and hundredths are registered. Sometimes, when the escapement has obviously failed, the water which has descended to the lower cistern has again been passed through the gauge, in order to enable an assistant to observe the indication of the dial-plates without fear of an imperfection in the machinery escaping notice. The gauge is placed on the ground, 21 feet South of the Magnetic Observatory, and 156 feet 6 inches above the mean level of the sea.

The seventh and eighth gauges are placed near together, about 16 feet south of the Magnetic Observatory, 5 inches above the ground, and 155 feet 3 inches above the mean level of the sea. They are similar in construction and area to No. 3. These cylinders are sunk about 8 inches in the ground.

All these gauges, except No. 7, are read at 22^h daily; in addition, Crosley's gauge and No. 8 are read daily at 9^h p.m., and No. 7 at the end of each month only, to check the summation of the daily readings of No. 8. All are read at midnight of the last day of each month.

Gauges Nos. 1, 2, 3, 5, 8 were made by Messrs. Negretti and Zambra; No. 4 by Troughton; No. 6 by Watkins and Hill; and No. 7 is an old gauge.

§ 23. *Electrical Apparatus.*

The electrical apparatus consists of two parts, namely, the Moveable Apparatus, which is connected with a pole nearly 80 feet high planted 7 feet North and 2 feet East of the north-east angle of the north arm of the Magnetic Observatory (as extended in 1862); and the Fixed Apparatus, which is mounted in a projecting window in the ante-room of the Magnetic Observatory.

On the top of the pole is fixed a projecting cap, to which are fastened the ends of two iron rods, which terminate in a pit sunk in the ground, and are kept in tension by attached weights. These rods are to guide the moveable apparatus in its ascents and descents. Near the bottom of the pole is fixed a windlass; the rope upon which it acts passes over a pulley in the cap, and is used to raise the moveable apparatus, which when raised to the top is suspended on a hook.

The moveable apparatus consists of the following parts:—A plank in a nearly

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usually communicates with the earth is made to touch the silver, the needle turns towards A; when the silver touches the small ball, and the wire is made to touch the copper, the needle turns towards B.

§ 24. *Explanation of the Tables of Meteorological Observations.*

The mean daily value of the difference between dew-point temperature and air-temperature is the difference between the two numbers in the sixth and seventh columns. The Greatest and Least are the greatest and least among the differences corresponding to the times of observation in the civil day, or they are found from the absolute maxima and minima, as determined by comparing the observations of the self-registering wet-bulb thermometers with those of the self-registering dry-bulb thermometers.

The difference between the mean temperature for the day and the mean for the same day of the year on an average of fifty years, is found by comparison with a table of results deduced by Mr. Glaisher from fifty years' observations, made at the Royal Observatory, ending 1863.

Little explanation of the results deduced from Osler's Anemometer appears to be necessary. It may be understood generally that the greatest pressure occurred in gusts of short duration.

To 1867, October 31, the indication of Robinson's Anemometer was read off every day at 22^h (10^h A.M.), and the difference between consecutive readings was entered opposite to the civil day on which the first reading was taken. From 1867, November 1, the daily values have been extracted from the sheets of the continuous record, applying to the interval from midnight to midnight, and are entered opposite to the civil day to which each value belongs.

The daily register of rain is given for each civil day ending at midnight. This applies to the Cylinder Rain-gauge partly sunk in the ground, described above as the "eighth." If, however, there appears to be any doubt as to the correctness of the results, reference is made to a Rain-gauge of similar construction and placed near to it, called above the "seventh."

For understanding the divisions of time under the heads of Electricity and Weather, the following remarks are necessary:—The day is divided by columns into two parts (from midnight to noon, and from noon to midnight), and each of these parts is roughly subdivided into two or three parts by colons (:). Thus, when there is a single colon in the first column, it denotes that the remarks before it apply (roughly) to the interval from midnight to 6 A.M., and those following it to the interval from 6 A.M. to noon. When there are two colons in the first column, it is to be understood that the twelve hours are divided into three nearly equal parts of four hours each. And similarly for the second column.

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The following is the explanation of the notation employed for record of electrical observations, it being premised that the quality of the Electricity is always to be supposed positive when no indication of quality is given :—

g cur. denotes *galvanic currents*	s denotes *strong*
m ... *moderate*	sp ... *sparks*
N ... *negative*	v ... *variable*
P ... *positive*	w ... *weak*

The duplication of the letter denotes an intensity of the modification described, thus, s s is very strong; v v, very variable.

The Clouds and Weather are described generally by Howard's Nomenclature; the figure denotes the proportion of sky covered by clouds, the whole sky being represented by 10. The notation is as follows :

a denotes *aurora borealis*	n denotes *nimbus*
ci ... *cirrus*	r ... *rain*
ci-cu ... *cirro-cumulus*	th-r ... *thin rain*
ci-s ... *cirro-stratus*	oc-r ... *occasional rain*
cu ... *cumulus*	oc-th-r ... *occasional thin rain*
cu-s ... *cumulo-stratus*	fr-r ... *frozen rain*
d ... *dew*	h-r ... *heavy rain*
h-d ... *heavy dew*	shs-r ... *showers of rain*
f ... *fog*	c-r ... *continued rain*
sl-f ... *slight fog*	c-h-r ... *continued heavy rain*
th-f ... *thick fog*	m-r ... *misty rain*
fr ... *frost*	fr-m-r ... *frequent misty rain*
g ... *gale*	oc-m-r ... *occasional misty rain*
h-g ... *heavy gale*	sl-r ... *slight rain*
glm ... *gloom*	h-shs ... *heavy showers*
gt-glm.. *great gloom*	fr-shs ... *frequent showers*
h-fr ... *hoar frost*	fr-h-shs ... *frequent heavy showers*
h ... *haze*	li-shs ... *light showers*
hl ... *hail*	oc-shs ... *occasional showers*
so-ha ... *solar halo*	oc-h-shs ... *occasional heavy showers*
l ... *lightning*	sq ... *squall*
li-cl ... *light clouds*	sqs ... *squalls*
lu-co ... *lunar corona*	fr-sqs ... *frequent squalls*
lu-ha ... *lunar halo*	h-sqs ... *heavy squalls*
m ... *meteor*	fr-h-sqs ... *frequent heavy squalls*
ms ... *meteors*	oc-sqs ... *occasional squalls*
mt ... *mist*	sc ... *scud*

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The paper, still damp, is immediately placed upon the interior cylinder, and is covered by the exterior glass cylinder, and the united cylinders are mounted upon the revolving apparatus, to receive the spot of light formed by the mirror, which is carried by the magnet; or to receive the line of light passing through the thermometer tube.

Third Operation.—Development of the Photographic Trace.

When the paper is removed from the cylinder, it is placed as before upon a board, and a saturated solution of Gallic Acid, to which a few drops of Aceto-Nitrate of Silver are occasionally added, is spread over the paper by means of a glass rod, and this action is continued until the trace is fully developed. The solutions are kept in the magnetic basement, and are always used at the temperature of that room. When the trace is well developed, the paper is placed in a vessel with water, and repeatedly washed with several waters; a brush being passed lightly over both sides of the paper to remove any crystalline deposit.

Fourth Operation.—Fixing the Photographic Trace.

The Photograph is placed in a solution of Hyposulphite of Soda, made by dissolving four or five ounces of the Hyposulphite in a pint of water; it is plunged completely in the liquid, and allowed to remain from one to two hours, until the yellow tint of the Iodide of Silver is removed. After this the sheet is washed repeatedly with water, allowed to remain immersed in water for 24 hours, and afterwards placed within folds of cotton cloths till nearly dry. Finally it is placed between sheets of blotting-paper, and is pressed.

CHEMICAL PREPARATION AND TREATMENT OF THE PHOTOGRAPHIC PAPER FOR SECONDARIES.

Before taking a Secondary, the Primary is examined to ascertain whether the tint of the photographic curve is sufficiently dark. If it is not, the Primary is laid, face downwards, upon a desk of transparent plate-glass, below which is a large silvered plane mirror, so placed that the light from the sky is reflected upwards through the transparent glass and through the Primary; and the photographic curve is seen from the upper side or back with perfect distinctness. An assistant then darkens the back of the photographic curve by the application of sepia; the original photograph being untouched.

The paper used for the Secondaries is made by Rive; it is a strong wove paper, of tolerably even texture, thin, but able to bear a great deal of wear.

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First Operation.—Preliminary Preparation of the Paper.

The chemical solution required for this purpose is as follows:—

Two grains of Chloride of Ammonium are dissolved in one ounce of distilled water. A sufficient quantity of this solution is placed in a flat-bottomed porcelain dish, and sheets of paper, one by one, are plunged within it; care being taken that no air bubbles remain between the paper and the solution; this may be prevented by slight pressure over the sheet by means of a bent glass rod. When a few sheets are thus immersed, they are turned over, and are taken out and hung to dry. Any number of sheets may thus be prepared.

An equally good result is obtained, by spreading over one side by means of a glass rod, as in the preparation of the Primaries, a solution of Chloride of Ammonium made by dissolving five grains of the chloride in one ounce of distilled water.

Second Operation.—Rendering the Paper sensitive to the Action of Light.

The solution required for this purpose is as follows:—

To a filtered solution of Nitrate of Silver (made by dissolving 50 grains of Crystallized Nitrate of Silver in one ounce of distilled water) some strong solution of Ammonia is added; the whole becomes at first of a dark brown colour, but when a sufficient quantity of Ammonia is added the solution becomes perfectly clear; a few crystals of Nitrate of Silver are then added till the solution is a little dull, forming "Ammoniacal Nitrate of Silver"; it is then ready for use.

The following operation is performed in a room illuminated by yellow light:—

By means of a glass rod this solution is spread over the paper, whilst pinned on a board; the paper is dried before a fire, and is then in a fit state to be used for producing a Secondary.

Third Operation.—Formation of the Photographic Copy.

A sheet of the paper so prepared is placed in a printing frame with its prepared side upwards, upon a bed of blotting paper resting upon a sheet of plate-glass; the Primary is then placed on the paper with its own face downwards; and as it is necessary, for obtaining a correct copy of the Primary, that it should be in close contact with the prepared surface, a second sheet of plate-glass is placed over it, and the two are pressed together by clamps and screws. The whole is then exposed to the light (the Primary to be copied being above the paper on which the copy is to be made). The time required to produce a copy depends, in a great measure, upon the thickness of the paper on which the Primary is made, and on the actinic quality of the light; a period of five minutes in a bright sunshine, or one hour in clear daylight, is generally sufficient.

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Fourth Operation.—Fixing the Photographic Secondary.

When an impression has been thus obtained, it is necessary that the undecomposed Salts of Silver remaining in the paper be removed.

For this purpose the Secondary is at once plunged into water and well washed on both sides, passing a camel-hair brush over every part of it; it is then plunged into a solution of Hyposulphite of Soda (made by dissolving two or three ounces of the Hyposulphite in a pint of water), and is left through a period varying from half an hour to an hour. It is then removed, and washed in plain water several times; and running water is allowed to pass over it for twenty-four hours.

The sheets are then placed within the folds of drying cloths, till nearly dry, and finally between sheets of blotting paper.

The process of obtaining a Tertiary from a Secondary is in every respect the same as that of obtaining a Secondary from a Primary.

§ 27. *Personal Establishment.*

The personal establishment during the year 1867 has consisted of James Glaisher, Esq., F.R.S., Superintendent of the Magnetical and Meteorological Department, and Mr. William Carpenter Nash, Assistant.

Three or four computers have usually been attached to the Department.

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ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL OBSERVATIONS.

1867.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Jan. 1 h m	° ′ ″	Jan. 1 h m		Jan. 1 h m		Jan. 1 h m	°	°
0. 0	20. 26. 40	0. 0	·1430	0. 0	·04104	0. 0	52 ·0	53 ·0
1. 14	26. 30	0. 8	·1433	1. 50	·04052	1. 0	52 ·2	53 ·2
2. 24	24. 45	0. 43	·1432	3. 50	·04057	2. 0	52 ·5	53 ·2
4. 8	23. 0	1. 5	·1436		(†)	3. 0	52 ·6	53 ·3
4. 43	23. 30	3. 45	·1436	4. 43	·03284	9. 0	51 ·8	53 ·0
5. 10	22. 0	4. 47	·1432	8. 34	·03276	21. 5	48 ·9	49 ·6
5. 25	22. 50	5. 5	·1428	9. 29	·03248	22. 0	49 ·0	50 ·0
6. 32	23. 55	5. 57	·1432	11. 29	·03220	23. 0	49 ·3	50 ·5
7. 23	23. 5	9. 46	·1432	19. 25	·03099			
9. 8	23. 40	10. 46	·1430	22. 0	·03088			
10. 38	22. 20	15. 19	·1434	22. 57	·03068			
11. 5	20. 50	15. 50	·1433	23. 59	·03074			
13. 53	23. 40	19. 31	·1437					
	***	21. 32	·1433					
16. 5	22. 45	22. 10	·1436					
16. 18	23. 25	23. 59	·1439					
17. 13	23. 10							
17. 30	23. 30							
	***							
19. 27	22. 50							
22. 0	24. 5							
23. 59	25. 10							
Jan. 2		Jan. 2		Jan. 2		Jan. 2		
0. 0	20. 25. 10	0. 0	·1439	0. 0	·03074	1. 0	51 ·3	52 ·5
0. 24	25. 0	0. 40	·1439	1. 7	·03108	3. 0	51 ·1	52 ·5
1. 26	25. 10	1. 0	·1439	2. 46	{·03080	9. 0	50 ·3	51 ·4
1. 37	26. 0	1. 24	·1446		{·02997	21. 5	47 ·2	48 ·2
	(†)	2. 37	·1442	5. 31	·02970	22. 0	47 ·4	48 ·2
3. 0	23. 26*	2. 45	·1446	9. 2	·02970	23. 0	47 ·8	48 ·0
4. 33	23. 10	2. 47	·1434	10. 12	·02943			
10. 14	22. 35	6. 30	·1437	12. 0	·02960			
12. 5	23. 0	12. 25	·1428	16. 4	·02928			
12. 34	22. 0	12. 38	·1434	21. 6	·02854			
13. 6	24. 0	12. 58	·1428	23. 30	·02820			
13. 25	22. 50	13. 34	·1430		(†)			
15. 36	24. 0	14. 5	·1428					
15. 57	25. 15	15. 55	·1429					
16. 45	23. 0	17. 1	·1436					
17. 34	23. 50	18. 11	·1435					
19. 30	22. 30	19. 5	·1438					
21. 34	23. 25		***					
21. 48	23. 0	22. 36	·1431					
23. 38	24. 35	23. 5	·1432					
	(†)		***					
		23. 22	·1425					
		23. 59	·1434					
Jan. 3		Jan. 3		Jan. 3		Jan. 3		
	(†)	0. 0	·1434		(†)	0. 0	47 ·8	48 ·0
0. 5	20. 25. 15	0. 35	·1436	0. 37	·02817	1. 0	48 ·0	48 ·4
0. 53	26. 0	2. 30	·1441	6. 27	·02830	2. 0	48 ·0	48 ·4
2. 28	24. 10	4. 2	·1440	8. 40	·02828	3. 0	48 ·1	48 ·6
4. 34	24. 35	4. 25	·1436	12. 19	·02806	9. 0	47 ·7	47 ·8
9. 0	22. 50	5. 25	·1440	14. 40	·02773	21. 0	44 ·7	45 ·0
14. 20	24. 10	9. 47	·1439	16. 23	·02741	22. 0	44 ·1	44 ·3
15. 10	25. 50	13. 37	·1435	20. 30	·02660	23. 0	44 ·3	44 ·3
15. 48	24. 0	13. 55	·1438		(†)			

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Jan. 3 h m	° ′ ″	Jan. 3 h m		Jan. 3 h m		h m	°	°
16. 59	20. 24. 0	14. 57	·1440	21. 0	·02659*			
	***	15. 10	·1438					
20. 4	22. 20	15. 46	·1443					
21. 30	24. 10	18. 14	·1446					
22. 6	23. 40	19. 30	·1440					
23. 19	26. 45	21. 0	·1439*					
23. 59	27. 15		(†)					
Jan. 4		Jan. 4		Jan. 4		Jan. 4		
0. 0	20. 27. 15		(†)		(†)	0. 0	44 ·3	44 ·3
1. 49	25. 0	0. 24	·1447	1. 0	·02585*	1. 0	44 ·3	44 ·3
2. 30	26. 0	2. 19	·1449	2. 31	·02586	3. 0	45 ·1	45 ·8
3. 5	25. 10	2. 59	·1442	6. 10:	·02627	9. 0	45 ·6	46 ·6
3. 59	25. 35	3. 15	·1444	9. 24	·02644	10. 0	45 ·1	46 ·1
4. 54	24. 45	3. 51	·1441	12. 48	·02610	21. 0	42 ·1	42 ·4
6. 57	24. 50	4. 4	·1445	16. 26	·02533	22. 0	42 ·0	42 ·1
7. 40	22. 50	4. 58	·1445	20. 41	·02452	23. 0	42 ·4	42 ·5
8. 4	23. 30	6. 54	·1440		(†)			
8. 15	22. 30	7. 35	·1429	21. 0	·02448*			
8. 36	24. 20	8. 15	·1428					
9. 8	21. 0	8. 26	·1430					
9. 30	21. 50	8. 43	·1428					
10. 5	21. 30	9. 35	·1431					
10. 18	22. 20	9. 55	·1429					
10. 30	21. 55	10. 40	·1435					
10. 54	22. 20	10. 59	·1431					
11. 8	21. 50	15. 24	·1440					
11. 22	22. 50	19. 8	·1445					
11. 30	22. 0	21. 3	·1444					
12. 40	24. 0		(†)					
13. 12	22. 55							
14. 35	25. 0							
14. 58	23. 35							
	***							
20. 44	23. 0							
23. 6	25. 10							
	(†)							
Jan. 5		Jan. 5		Jan. 5		Jan. 5		
	(†)		(†)		(†)	0. 0	42 ·8	43 ·1
0. 24	20. 26. 10	0. 54	·1447	1. 0	·02521*	1. 0	44 ·9	45 ·8
1. 43	24. 10	1. 40	·1450	1. 46	·02670	3. 0	46 ·5	47 ·9
1. 50	22. 50	2. 4	·1457	3. 8	·02703	9. 0	48 ·6	50 ·6
2. 44	22. 0	2. 42	·1456	6. 34	·02836	21. 50	50 ·0	51 ·8
2. 54	22. 15	2. 59	·1467	10. 42	·02916			
3. 25	21. 55	6. 33	·1462	14. 36	·02960			
4. 14	22. 40	7. 39	·1457	16. 4	·02969			
8. 3	22. 30	8. 19	·1458	22. 46	·03036			
8. 13	22. 0	8. 45	·1454	23. 59	·03038			
8. 57	22. 10	9. 19	·1459					
9. 14	21. 0	9. 35	·1455					
9. 25	21. 20	9. 54	·1460					
10. 9	20. 0	10. 10	·1454					
10. 34	21. 50	10. 34	·1462					
10. 50	20. 40	11. 42	·1449					
11. 4	21. 30	17. 41	·1459					
11. 20	20. 10		***					
12. 7	21. 15	22. 39	·1446					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

January 1d. 3h. 50m. The Vertical Force Magnet was re-adjusted.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Jan. 5		Jan. 5						
h m	° ′ ″	h m		h m		h m	°	°
12. 20	20. 20. 40	23. 19	·1453					
13. 10	21. 25		(†)					
13. 29	21. 5							
13. 50	22. 10							
16. 50	22. 50							
20. 38	21. 55							
23. 24	25. 5							
	(†)							
Jan. 6		Jan. 6		Jan. 6		Jan. 6		
	(†)		(†)	0. 0	·03038	1. 0	51 ·9	53 ·3
0. 40	20. 25. 20	0. 50	·1460	2. 12	·03122	9. 0	53 ·2	55 ·0
3. 4	22. 55	1. 54	·1463	6. 25	·03205	21. 0	55 ·2	56 ·6
3. 23	23. 50		***	10. 0	·03231	22. 0	55 ·2	56 ·9
4. 13	23. 10	4. 37	·1467	13. 30	·03292	23. 0	55 ·3	57 ·0
4. 19	24. 20	8. 35	·1453	14. 25	·03281			
4. 51	23. 10	8. 49	·1448	15. 14	·03298			
5. 12	23. 20	9. 3	·1456	21. 0	·03347			
5. 18	22. 55	9. 42	·1462	22. 34	·03355			
5. 34	23. 25	10. 16	·1452	23. 0	·03375			
6. 44	22. 0	11. 25	·1445	23. 59	·03384			
7. 44	21. 30	13. 8	·1444					
8. 0	20. 0	13. 55	·1451					
8. 17	21. 0	14. 45	·1448					
8. 35	19. 50	19. 24	·1456					
8. 57	20. 0	20. 41	·1452					
9. 8	20. 55	20. 49	·1457					
9. 30	19. 15	21. 0	·1453					
9. 50	20. 25	21. 40	·1447					
10. 18	19. 25	21. 57	·1436					
10. 44	21. 0	22. 15	·1439					
13. 10	21. 15	22. 25	·1416					
13. 54:	25. 50		(†)					
14. 36	21. 40							
16. 5	23. 0							
	***							
17. 30	21. 50							
17. 57	22. 30							
20. 44	20. 45							
21. 59	21. 55							
22. 17	23. 50							
22. 28	22. 0							
	(†)							
Jan. 7		Jan. 7		Jan. 7		Jan. 7		
	(†)		(†)	0. 0	·03384	0. 0	55 ·6	57 ·3
0. 8	20. 23. 0	0. 53	·1437	1. 8	·03414	1. 0	56 ·7	58 ·0
1. 4	24. 10	1. 9	·1440	2. 35	·03463	3. 0	58 ·0	59 ·0
1. 15	26. 20	1. 39	·1434	5. 18	·03510	9. 0	57 ·4	59 ·0
2. 10:	23. 0	2. 47	·1435	6. 5	·03529	21. 0	57 ·0	58 ·4
3. 15	22. 15	4. 17	·1427	8. 28	·03525	22. 0	57 ·5	58 ·5
3. 27	23. 0	4. 54	·1419	10. 49	·03509	23. 0	57 ·5	58 ·7
3. 43	22. 0	5. 0	·1421	12. 49	·03502			
4. 46	25. 0	5. 16	·1416	13. 5	·03510			
4. 59	23. 50	5. 40	·1413	13. 45:	·03473			
5. 9	24. 10	5. 57	·1418	14. 48	·03493			
5. 33	22. 0	6. 5	·1413	21. 2	·03495			
5. 45	22. 5	6. 20	·1415	22. 42	·03513			

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Jan. 7		Jan. 7		Jan. 7				
h m	° ′ ″	h m		h m		h m	°	°
6. 0	20. 24. 0	6. 34	·1413	23. 48	·03508			
6. 35	23. 5	7. 18	·1420	23. 59	·03515			
6. 43	24. 0	7. 35	·1416					
7. 56	16. 50	7. 56	·1419					
8. 9	13. 0	8. 9	·1414					
8. 20	13. 20	8. 27	·1419					
8. 30	12. 30	9. 54	·1425					
9. 45	22. 10	10. 9	·1422					
10. 3	21. 30	10. 29	·1425					
11. 9	22. 5	11. 55	·1418					
11. 46	20. 30	12. 19	·1423					
12. 4	21. 50	12. 59	·1418					
12. 45	19. 55	13. 30	·1443					
13. 5	28. 0	14. 14	·1420					
13. 28	21. 5	15. 44	·1427					
13. 49	19. 35	16. 5	·1429					
14. 5	22. 0	16. 36	·1425					
14. 43	21. 50	19. 15	·1428					
15. 4	20. 10	19. 44	·1420					
15. 35	21. 55	21. 8	·1426					
15. 57	21. 30		***					
16. 40	22. 50	23. 40	·1418					
19. 45	21. 0		(†)					
23. 59	24. 15							
Jan. 8		Jan. 8		Jan. 8		Jan. 8		
0. 0	20. 24. 15		(†)	0. 0	·03515	0. 0	59 ·0	59 ·0
2. 14	22. 50	4. 35	·1373	2. 52	·03550	1. 0	59 ·8	59 ·2
3. 34	23. 0	7. 3	·1374	6. 50	·03570	2. 0	59 ·9	59 ·2
3. 40	22. 0	8. 26	·1374	10. 50	·03532	3. 0	59 ·9	59 ·0
8. 6	21. 0	8. 43	·1368	12. 23	·03532	9. 0	58 ·5	58 ·8
8. 38	21. 30	9. 11	·1376	13. 0	·03518	21. 0	56 ·1	56 ·7
9. 5	17. 0		***	14. 5	·03516	22. 30	55 ·2	55 ·9
9. 35	21. 30	11. 44	·1372	17. 23	·03495	23. 0	55 ·2	55 ·9
11. 57	22. 15	12. 18	·1379	23. 59	·03420			
12. 20	24. 20	12. 57	·1373					
12. 43	22. 25	13. 9	·1375					
13. 2	22. 30	13. 59	·1373					
13. 24	22. 0	14. 16	·1376					
13. 42	22. 40	14. 30	·1373					
14. 8	21. 20	16. 4	·1380					
	***	19. 49	·1380					
16. 4	21. 10	21. 30	·1373					
16. 45	22. 10	23. 19	·1377					
17. 29	21. 30		(†)					
19. 14	22. 0							
21. 20	24. 0							
21. 40	23. 50							
22. 26	25. 10							
23. 29	25. 30							
	(†)							
Jan. 9		Jan. 9		Jan. 9		Jan. 9		
	(†)		(†)	0. 0	·03420	0. 0	55 ·5	56 ·1
0. 11	20. 25. 10	1. 0	·1378*	1. 10	·03430	1. 0	55 ·9	56 ·3
1. 30	23. 50	3. 0	·1400*	8. 19	·03460	2. 0	55 ·8	56 ·5
2. 42	23. 30	5. 40	·1404	21. 8	·03435	3. 0	56 ·0	57 ·0
3. 0	22. 10	6. 58	·1401	22. 35	·03409	9. 0	56 ·0	57 ·2

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

January 8. The Horizontal Force Magnet was under adjustment till $4^h.\ 35^m$.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.
Jan. 13 h m	° ′ ″
21. 29	20. 28. 30
21. 59	25. 0
22. 13	27. 45
22. 25	25. 0
22. 42	30. 0
23. 6	27. 15
23. 35	27. 5
23. 51	27. 0
23. 59	28. 35
Jan. 14	
0. 0	20. 28. 35
0. 31	28. 10
0. 56	29. 45
1. 6	28. 0
1. 35	22. 20
1. 57	20. 35
2. 8	22. 0
2. 50	23. 0
3. 46	18. 10
4. 15	21. 0
4. 36	21. 55
5. 27	21. 15
6. 8	16. 45
6. 27	11. 55
6. 50	20. 55
7. 8	16. 10
7. 24	15. 55
7. 55	21. 0
8. 19	16. 0
8. 31	16. 55
8. 45	21. 5
9. 5	21. 55
9. 23	20. 0
9. 38	21. 55
10. 19	21. 15
10. 33	22. 5
10. 56	22. 10
11. 8	21. 5
11. 27	21. 20
11. 43	22. 10
12. 14	24. 55
12. 30	22. 35
12. 40	24. 10
12. 54	23. 0
13. 6	25. 35
13. 54	22. 0
14. 8	22. 50
14. 28	21. 45
14. 44	22. 20
15. 16	20. 50
15. 27	21. 10
15. 39	19. 50
16. 9	20. 50
	***
17. 17	21. 50
19. 20	22. 20
	***

Greenwich Mean Solar Time.	Horizontal Force in the whole parts of the H. F. uncorrected for Temperature.
h m	
Jan. 14	
0. 0	·1409
0. 21	·1408
0. 40	·1410
1. 25	·1402
2. 13	·1418
2. 45	·1418
3. 19	·1407
3. 35	·1411
3. 49	·1409
3. 59	·1413
4. 36	·1411
4. 51	·1416
5. 9	·1414
5. 25	·1419
5. 56	·1406
6. 23	·1409
6. 45	·1428
7. 6	·1411
7. 33	·1430
7. 56	·1416
8. 9	·1412
8. 39	·1435
8. 47	·1430
8. 54	·1419
9. 7	·1412
9. 26	·1422
9. 41	·1415
	***
10. 35	·1416
11. 20	·1409
12. 6	·1417
12. 43	·1412
	***
14. 25	·1412
16. 7	·1417
17. 29	·1425
18. 47	·1424
	(†)
21. 0	·1423*
23. 59	·1421

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m	
Jan. 14	
1. 0	(†)
3. 0	·02921*
4. 28	·02907*
5. 5	·02885
6. 2	·02900
6. 45	·02890
7. 15	·02905
7. 50	·02890
8. 43	·02892
10. 0	·02850
	·02840
15. 58	(†)
20. 4	·02809
	·02780
21. 0	(†)
	·02778*

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
Jan. 14		
0. 0	45·4	46·6
1. 0	47·1	47·9
2. 0	47·1	48·0
3. 0	47·1	48·0
9. 0	47·0	47·5
21. 0	46·2	46·3
22. 0	45·2	45·3
23. 0	45·8	46·0

Greenwich Mean Solar Time.	Western Declination.
h m	° ′ ″
Jan. 14	
22. 45	20. 25. 0
23. 59	25. 0
Jan. 15	
0. 0	20. 25. 0
1. 18	25. 0
3. 36	21. 50
4. 30	22. 20
4. 45	21. 30
5. 25	22. 30
5. 35	23. 45
5. 47	22. 40
6. 20:	23. 0
7. 4	21. 10
7. 13	22. 10
7. 17	23. 20
7. 22	22. 5
7. 44	22. 30
7. 56	21. 45
8. 40	21. 30
9. 7	23. 0
9. 30	8. 15
9. 50	11. 55
10. 22	19. 15
11. 7	24. 0
11. 24	22. 35
11. 46	23. 0
12. 3	22. 0
12. 56	23. 10
13. 29	21. 30
13. 56	22. 10
13. 44	22. 0
13. 59	25. 0
14. 23	23. 20
14. 38	24. 15
15. 24	22. 0
15. 45	22. 15
16. 3	20. 10
16. 13	21. 0
16. 35	20. 15
16. 58	20. 15
17. 20	21. 15
18. 23	20. 55
18. 55	21. 50
19. 19	21. 10
21. 18	23. 50
21. 40	23. 15
21. 59	27. 0
22. 22	26. 40
22. 28	27. 15
22. 45	26. 20
23. 7	28. 10
23. 29	27. 15
23. 59	28. 25
Jan. 16	
0. 0	20. 28. 25
0. 26	30. 15

Greenwich Mean Solar Time.	Horizontal Force in the whole parts of the H. F. uncorrected for Temperature.
h m	
Jan. 15	
0. 0	·1421
3. 7	·1427
5. 8	·1419
6. 26	·1422
6. 45	·1412
7. 10	·1421
7. 17	·1418
7. 47	·1418
8. 21	·1414
8. 50	·1418
9. 16	·1415
9. 34	·1431
10. 45	·1410
11. 30	·1417
11. 47	·1413
12. 14	·1416
12. 24	·1413
13. 19	·1415
13. 50	·1412
14. 7	·1418
14. 25	·1415
14. 41	·1417
	***
18. 52	·1418
19. 8	·1414
19. 29	·1417
20. 4	·1414
20. 18	·1417
20. 34	·1413
20. 50	·1415
22. 4	·1410
23. 13	·1410
23. 29	·1400
23. 43	·1408
	(†)
Jan. 16	
0. 0	(†)
1. 0	·1423*

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m	
Jan. 15	
1. 0	(†)
1. 42	·02769*
4. 15	·02770
6. 0	·02796
9. 6	·02832
9. 20	·02865
9. 35	·02848
13. 50	·02860
14. 7	·02855
14. 20	·02865
19. 5	·02855
20. 49	·02852
	·02838
	(†)
21. 0	·02841*
Jan. 16	
1. 0	(†)
	·02846*

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
Jan. 15		
0. 0	46·1	46·5
1. 0	46·5	47·1
3. 0	47·3	48·0
9. 0	47·9	49·1
21. 0	46·8	47·7
22. 0	46·9	47·5
23. 0	46·7	47·5
Jan. 16		
0. 0	46·8	48·0
1. 0	47·5	48·2

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Jan. 16	° ′ ″	Jan. 16		Jan. 16		Jan. 16	°	°
h m		h m		h m		h m		
1. 0	20. 27. 50	1. 40	·1420	2. 56	·02879	2. 0	47 ·5	48 ·5
2. 9	24. 0	2. 50	·1421	3. 25	·02855	3. 0	47 ·9	48 ·4
2. 48	26. 20	3. 19	·1411	8. 38	·02915	9. 0	48 ·2	50 ·0
3. 6	24. 35	3. 56	·1421	11. 43	·02925	21. 0	47 ·3	49 ·2
3. 19	24. 50	4. 3	·1417	13. 34	·02934	22. 0	47 ·2	49 ·0
3. 56	20. 15	4. 25	·1421	17. 30	·02925	23. 0	47 ·3	49 ·2
4. 33	22. 10	4. 37	·1416	22. 35	·02893			
10. 4	20. 20	4. 51	·1420	23. 30	·02900			
10. 28	22. 55	5. 47	·1416	23. 59	·02915			
10. 46	15. 0	6. 8	·1423					
11. 15	20. 55	6. 23	·1416					
11. 54	19. 50	7. 5	·1419					
12. 20	21. 45	8. 40	·1419					
12. 40	20. 25	8. 52	·1422					
13. 19	23. 0	9. 8	·1418					
13. 39	22. 10	9. 55	·1416					
14. 14	22. 20	10. 5	·1419					
14. 41	21. 0	10. 17	·1415					
15. 20	22. 15	10. 38	·1426					
16. 0	21. 15	11. 55	·1410					
16. 45	21. 55	12. 28	·1414					
17. 58	20. 15	12. 46	·1411					
19. 4	20. 35	14. 30	·1416					
19. 54	21. 10	14. 54	·1413					
20. 34	22. 0	18. 57	·1421					
21. 35	22. 35		***					
22. 0	25. 30	21. 49	·1416					
22. 25	23. 30	22. 5	·1417					
22. 41	24. 10	22. 20	·1407					
22. 48	26. 50	22. 43	·1413					
22. 56	24. 40	22. 50	·1406					
23. 11	26. 0	23. 59	·1418					
23. 59	25. 15							
Jan. 17		Jan. 17		Jan. 17		Jan. 17		
0. 0	20. 25. 15	0. 0	·1418	0. 0	·02915	0. 0	48 ·0	50 ·0
0. 18	26. 10	1. 48	·1422	2. 10	·02953	1. 0	48 ·5	50 ·2
2. 3	24. 10	2. 55	·1420	3. 9	·02962	3. 0	48 ·4	50 ·2
2. 24	24. 30	3. 14	·1427	4. 24	·02958	9. 0	48 ·0	50 ·0
3. 5	22. 40	4. 37	·1412	5. 38	·02970	21. 0	47 ·7	49 ·7
3. 36	25. 0	4. 55	·1412	6. 27	·02994	23. 0	47 ·5	49 ·7
4. 17	25. 50	5. 6	·1407	8. 10	·03005			
4. 29	24. 55	5. 33	·1408	8. 25	·02990			
4. 49	24. 5	5. 58	·1393	9. 0	·02992			
5. 0	25. 15	6. 25	·1405	9. 27	·02975			
5. 19	25. 40	6. 46	·1412	9. 37	·02985			
5. 29	24. 40	7. 21	·1396	10. 22	·02940			
5. 45	24. 30	7. 35	·1400	12. 51	·02960			
6. 29	12. 55	7. 48	·1396	17. 21	·02945			
6. 53	9. 30	8. 5	·1408	22. 12	·02948			
7. 3	10. 40	8. 16	·1403	23. 59	·02948			
7. 15	13. 0	8. 41	·1415					
7. 23	12. 15	8. 55	·1410					
7. 50	17. 0	9. 3	·1415					
7. 57	16. 10	9. 14	·1409					
8. 9	19. 0	9. 30	·1429					
8. 30	16. 0	10. 10	·1411					
8. 44	18. 25	10. 28	·1423					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Jan. 17	° ′ ″	Jan. 17	-					
h m		h m		h m		h m	°	°
9. 4	20. 17. 35	11. 15	·1413					
9. 13	19. 35	11. 48	·1416					
9. 27	11. 55	12. 12	·1408					
9. 45	19. 40	12. 25	·1413					
9. 57	24. 20	12. 40	·1409					
10. 7	25. 0	13. 11	·1413					
10. 30	19. 0	13. 51	·1405					
11. 5	23. 0	14. 0	·1410					
11. 19	21. 50	14. 10	·1408					
12. 23	22. 0	14. 20	·1413					
12. 34	22. 30	14. 37	·1407					
12. 45	21. 0	15. 46	·1412					
13. 8	23. 0	15. 58	·1409					
13. 35	23. 0	17. 0	·1417					
13. 45	22. 5	17. 27	·1409					
14. 5	25. 5	18. 5	·1414					
14. 16	23. 15	18. 28	·1406					
14. 25	23. 30	18. 47	·1409					
14. 34	24. 50	19. 5	·1404					
15. 17	23. 10	19. 25	·1409					
15. 35	21. 30	19. 39	·1406					
16. 0	24. 50		***					
16. 30	23. 0	21. 5	·1412					
16. 37	23. 20		***					
17. 9	20. 20	23. 48	·1406					
17. 25	21. 50	23. 59	·1410					
17. 35	20. 55							
17. 42	22. 30							
18. 4	21. 30							
18. 27	23. 0							
18. 57	21. 20							
19. 18	22. 0							
19. 30	21. 0							
20. 18	20. 10							
	***							
22. 17	22. 30							
22. 30	24. 20							
22. 39	24. 0							
22. 51	24. 50							
23. 13	24. 0							
23. 39	24. 15							
23. 59	26. 30							
Jan. 18		Jan. 18		Jan. 18		Jan. 18		
0. 0	20. 26. 30	0. 0	·1410	0. 0	·02948	0. 0	48 ·1	50 ·3
0. 20	26. 50	2. 20	·1418	0. 53	·02960	1. 0	48 ·9	50 ·8
0. 55	25. 0	5. 36	·1422	1. 58	·02988	2. 0	49 ·1	51 ·3
1. 18	26. 5	5. 59	·1418	5. 19	·02995	3. 0	49 ·3	51 ·1
1. 33	25. 0	6. 24	·1424	7. 40	·03025	9. 0	49 ·6	51 ·4
2. 18	23. 35	6. 41	·1418	11. 3	·03015	21. 0	48 ·2	50 ·0
2. 27	24. 10	6. 51	·1420	11. 18	·03020	22. 45	48 ·0	50 ·0
2. 58	23. 0	7. 19	·1410	11. 54	·02990	23. 30	48 ·2	50 ·2
3. 29	22. 45	7. 57	·1416	14. 13	·02954			
	***	8. 7	·1417	16. 0	·02976			
6. 23	22. 50	8. 39	·1413	21. 10	·02970			
6. 38	23. 50	8. 57	·1416		(†)			
6. 54	23. 20	9. 35	·1410					
7. 0	23. 0	10. 5	·1416					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Indications of the Magnetometers

Greenwich Mean Solar Time.	Western Declination.
Jan. 24 h m	° ′ ″
11. 34	20. 20. 0
11. 55	18. 55
14. 19	21. 15
18. 3	21. 20
21. 27	20. 10 ***
23. 59	23. 30
Jan. 25	
0. 0	20. 23. 30
0. 47	24. 40
0. 54	23. 30
0. 57	24. 20
3. 23	23. 15
3. 47	22. 45
4. 24	23. 15
4. 47	21. 55
5. 4	22. 20
5. 36	21. 45
6. 19	23. 10
6. 43	22. 0
12. 52	20. 50
16. 14	22. 15
19. 57	21. 10
22. 7	22. 0
23. 15	21. 50
23. 28	23. 0
23. 59	22. 55
Jan. 26	
0. 0	20. 22. 55
1. 25	24. 10
3. 59	22. 0
5. 7	22. 20
5. 22	21. 10
5. 54:	22. 0
6. 26	20. 0
6. 52	21. 35
14. 33	20. 20
14. 47	21. 10
15. 21	20. 15
16. 40	21. 30
20. 8	21. 15
23. 59	24. 20
Jan. 27	
0. 0	20. 24. 20
0. 56	25. 30
3. 12	22. 0
4. 15	21. 15
12. 25	20. 45
12. 56	22. 10
13. 26	20. 45
19. 4	21. 15
21. 23	20. 20
22. 2	20. 55
23. 59	24. 30

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
Jan. 24 h m	
22. 7	·1393
23. 14	·1386
23. 59	·1388
Jan. 25	
0. 0	·1388
2. 56	·1399
4. 37	·1390
5. 17	·1395
5. 59	·1394
7. 39	·1402
8. 14	·1402
8. 36	·1404
9. 30	·1398
10. 18	·1400
10. 47	·1397
12. 34	·1397
13. 10	·1394
13. 48	·1398
14. 38	·1395
15. 43	·1394
19. 59	·1404
23. 15	·1394
23. 59	·1398
Jan. 26	
0. 0	·1398
2. 44	·1406
5. 5	·1400
5. 11	·1396
5. 55	·1402
6. 18	·1396
7. 5	·1406 ***
13. 15	·1401
13. 44	·1406
19. 25	·1406
22. 58	·1400
23. 59	·1400
Jan. 27	
0. 0	·1400
2. 15	·1405
5. 16	·1405
12. 23	·1400
12. 43	·1406
13. 19	·1400
15. 44	·1400
19. 38	·1405
23. 59	·1396

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m	
Jan. 25	
0. 0	·03440
0. 35	·03453
5. 20	·03480
9. 45	·03440
23. 59	·03390
Jan. 26	
0. 0	·03390
1. 59	·03418
6. 43	·03428
12. 8	·03410
22. 51	·03463
23. 59	·03475
Jan. 27	
0. 0	·03475
1. 33	·03500
2. 45	·03515
8. 0	·03537
23. 59	·03550

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
Jan. 25		
0. 0	56 ·5	58 ·2
1. 0	57 ·0	58 ·5
2. 0	56 ·8	58 ·5
3. 0	57 ·0	58 ·5
9. 0	55 ·7	57 ·3
21. 0	55 ·2	56 ·7
22. 0	55 ·2	56 ·7
23. 0	55 ·3	56 ·8
Jan. 26		
0. 0	56 ·2	57 ·3
1. 0	56 ·3	57 ·6
2. 0	56 ·2	57 ·3
3. 0	56 ·1	57 ·6
9. 0	55 ·5	57 ·0
21. 30	56 ·7	58 ·8
Jan. 27		
0. 15	57 ·8	59 ·6
9. 30	58 ·5	60 ·1
21. 0	58 ·9	60 ·3
22. 30	59 ·0	60 ·3
23. 0	58 ·9	60 ·0

Greenwich Mean Solar Time.	Western Declination.
Jan. 28 h m	° ′ ″
0. 0	20. 24. 30
0. 17	25. 10
1. 22	24. 15
1. 38	25. 5
3. 26	22. 0
10. 20	20. 35
14. 50	21. 50
17. 39	21. 50
21. 14	21. 0
21. 56	22. 5
23. 16	23. 20
23. 45	23. 10
23. 59	23. 25
Jan. 29	
0. 0	20. 23. 25
0. 48	25. 10
3. 42	22. 40
3. 56	23. 0
5. 9	21. 45
6. 11	22. 10
8. 8	21. 0
12. 20	20. 20
13. 5	19. 15
15. 0	19. 45
16. 4	20. 25
16. 36	19. 50
16. 55	20. 15
17. 22	20. 0
18. 48	21. 20
21. 0	20. 20
21. 50	20. 50
23. 59	24. 0
Jan. 30	
0. 0	20. 24. 0
0. 25	24. 25
2. 14	23. 10
3. 40	21. 10
5. 27	21. 0
7. 19	21. 20
7. 34	20. 0
7. 49	19. 0
7. 58	19. 30
8. 15	15. 30
8. 44	20. 0
9. 4	21. 10
9. 45	21. 0
10. 34	16. 35
10. 50	20. 15
11. 18	11. 25
11. 45	10. 30
11. 54	11. 5
12. 16	17. 0
12. 43	17. 35
13. 30	21. 10 ***
15. 12	20. 10

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
Jan. 28 h m	
0. 0	·1396
1. 39	·1403 ***
6. 35	·1405 ***
9. 41	·1398
14. 0	·1399
19. 21	·1406
21. 48	·1403
23. 19	·1406
23. 59	·1403
Jan. 29	
0. 0	·1403
0. 40	·1402
0. 55	·1409
1. 54	·1412
2. 15	·1408
2. 34	·1411
3. 20	·1404
5. 29	·1404
5. 50	·1408
7. 39	·1403
12. 39	·1398
13. 0	·1404
13. 36	·1398
15. 35	·1396
18. 7	·1401
22. 4	·1394
23. 59	·1402
Jan. 30	
0. 0	·1402
2. 0	·1402
5. 46	·1407
7. 15	·1403
7. 27	·1399
8. 47	·1403
9. 34	·1400
10. 24	·1389
11. 29	·1418
12. 10	·1399
12. 26	·1401
13. 37	·1396
14. 45	·1399
19. 5	·1401
23. 59	·1398

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
Jan. 28 h m	
0. 0	·03550
0. 55	·03548
8. 53	·03556
10. 5	·03539
12. 18	·03540
21. 0	·03490
22. 2	·03465
23. 44	·03468 (†)
Jan. 29	
0. 56	(†) ·03465
3. 15	·03468
8. 45	·03511
20. 3	·03534
22. 16	·03520
23. 49	·03481
23. 59	·03495
Jan. 30	
0. 0	·03495
0. 58	·03500
1. 15	·03528
4. 33	·03525
4. 59	·03535
7. 44	·03533
8. 24	·03553
9. 34	·03540
10. 43	·03545
12. 0	·03503
13. 23	·03505
21. 6	·03435
22. 21	·03400
23. 30	·03405
23. 59	·03405

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
Jan. 28		
0. 0	58 ·2	59 ·2
1. 0	58 ·8	59 ·7
2. 0	58 ·9	59 ·8
3. 0	58 ·5	59 ·5
9. 0	58 ·1	59 ·4
21. 0	57 ·0	58 ·0
22. 0	56 ·3	57 ·3
23. 0	56 ·8	58 ·0
Jan. 29		
0. 0	56 ·9	58 ·0
1. 0	57 ·3	58 ·3
2. 0	57 ·2	58 ·2
3. 0	57 ·0	57 ·9
9. 0	58 ·0	59 ·0
21. 0	58 ·6	60 ·0
22. 0	58 ·0	59 ·1
23. 0	57 ·5	58 ·6
Jan. 30		
0. 0	58 ·3	59 ·6
1. 0	58 ·5	59 ·8
3. 0	57 ·9	59 ·4
9. 0	58 ·1	59 ·7
21. 0	55 ·4	56 ·2
22. 0	55 ·1	56 ·3
23. 0	55 ·6	57 ·0

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Jan. 30								
h m	° ′ ″	h m		h m		h m	°	°
18. 10	20. 20. 55							
20. 54	20. 0							
21. 57	20. 45							
23. 59	24. 0							
Jan. 31		Jan. 31		Jan. 31		Jan. 31		
0. 0	20. 24. 0	0. 0	·1398	0. 0	·03405	0. 0	56 ·0	57 ·2
1. 23	25. 20	0. 15	·1400	2. 42	·03450	1. 0	57 ·0	58 ·1
1. 28	24. 35	1. 36	·1406	9. 4	·03457	3. 0	56 ·2	57 ·9
1. 35	25. 10	2. 43	·1402	10. 50	·03437	9. 0	56 ·2	58 ·0
4. 11	21. 55	3. 17	·1398	23. 30	·03394	21. 0	55 ·4	57 ·1
5. 53	22. 30	3. 57	·1403	23. 50	·03392	22. 0	55 ·2	56 ·9
14. 6	21. 0	4. 4	·1400	23. 59	·03392	23. 0	55 ·4	57 ·0
15. 43	21. 55	4. 22	·1403					
17. 24	21. 0	9. 46	·1397					
18. 42	20. 40	13. 35	·1398					
21. 35	19. 0	13. 59	·1395					
23. 46	23. 10	18. 48	·1406					
23. 59	24. 0	21. 10	·1399					
		23. 59	·1403					
Feb. 1		Feb. 1		Feb. 1		Feb. 1		
0. 0	20. 24. 0	0. 0	·1403	0. 0	·03392	0. 0	55 ·7	57 ·5
0. 46	24. 50	3. 4	·1410	1. 8	·03392	1. 0	56 ·4	58 ·1
1. 56	24. 10	6. 9	·1404	2. 49	·03436	2. 0	56 ·4	58 ·0
4. 14	21. 15	7. 42	·1405	10. 48	·03487	3. 0	56 ·4	58 ·2
4. 59	22. 0	8. 33	·1396	13. 35	·03485	9. 0	57 ·3	59 ·3
6. 54	22. 0	8. 50	·1398	17. 36	·03505	21. 0	58 ·1	59 ·0
7. 10	20. 0	9. 8	·1395	21. 5	·03492	22. 0	57 ·4	58 ·7
7. 34	20. 0	9. 42	·1397	23. 59	·03455	23. 0	57 ·4	58 ·7
8. 3	21. 50	10. 3	·1393					
8. 34	20. 10	10. 50	·1397					
8. 45	19. 30	11. 0	·1395					
9. 6	20. 50	11. 20	·1400					
9. 44	18. 55	13. 15	·1403					
9. 55	19. 15	13. 55	·1400					
10. 10	18. 35	14. 15	·1403					
10. 50	19. 40	15. 4	·1404					
11. 4	20. 30	16. 3	·1401					
11. 17	19. 40	18. 20	·1405					
13. 10	22. 0	19. 56	·1406					
13. 32	21. 15	20. 14	·1402					
13. 58	21. 0	20. 28	·1405					
14. 23	22. 50	21. 57	·1400					
14. 45	21. 55	22. 7	·1405					
14. 57	22. 30	22. 28	·1395					
16. 4	20. 35	22. 58	·1403					
16. 39	20. 30	23. 18	·1406					
17. 3	21. 20	23. 36	·1400					
17. 22	20. 35	23. 59	·1396					
17. 40	21. 20							
17. 59	20. 30							
18. 34	21. 5							
18. 54	20. 30							
19. 13	20. 55							
20. 34	19. 35							
21. 15	20. 0							
21. 57	21. 20							

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Feb. 1								
h m	° ′ ″	h m		h m		h m	°	°
21. 59	20. 22. 50							
22. 9	22. 5							
22. 23	23. 20							
22. 50	22. 0							
23. 43	25. 0							
23. 59	24. 10							
Feb. 2		Feb. 2		Feb. 2		Feb. 2		
0. 0	20. 24. 10	0. 0	·1396	0. 0	·03455	0. 0	57 ·4	58 ·7
1. 9	26. 0	0. 14	·1402	1. 10	·03450	1. 0	57 ·5	58 ·7
3. 50	22. 20	2. 14	·1398	5. 21	·03500	2. 0	57 ·5	58 ·8
4. 41	23. 45	2. 19	·1404	9. 0	·03500	3. 0	57 ·5	59 ·0
5. 16	22. 40	3. 8	·1396	12. 44	·03470	9. 0	57 ·5	58 ·7
5. 50	23. 10	3. 47	·1394	14. 35	·03443	21. 0	55 ·1	56 ·1
7. 7	22. 50	4. 0	·1398	21. 4	·03390			
8. 15	19. 40	4. 13	·1396	23. 8	·03325			
9. 37	21. 35	4. 34	·1399	23. 59	·03338			
10. 13	20. 50	5. 4	·1389					
11. 16	20. 20	5. 35	·1393					
12. 27	22. 15	6. 19	·1390					
12. 53	21. 30	6. 43	·1397					
13. 14	20. 30	7. 24	·1394					
13. 29	21. 20	8. 21	·1399					
13. 46	23. 0	8. 36	·1393					
14. 10	21. 0	9. 24	·1392					
14. 25	21. 15	10. 27	·1396					
14. 36	22. 50	11. 43	·1392					
15. 6	21. 0	12. 35	·1398					
15. 37	22. 5	13. 25	·1397					
16. 15	20. 0	13. 38	·1401					
16. 26	20. 50	14. 38	·1393					
17. 15	21. 30	15. 9	·1397					
17. 43	20. 45	15. 22	·1392					
18. 34	21. 0	15. 48	·1396					
19. 0	20. 0	16. 5	·1393					
19. 15	20. 45	18. 43	·1397					
20. 49	20. 0	19. 0	·1400					
21. 43	21. 0	19. 45	·1396					
22. 8	21. 0		***					
22. 26	21. 55	22. 12	·1401					
22. 54	22. 10	23. 59	·1396					
23. 59	24. 10							
Feb. 3		Feb. 3		Feb. 3		Feb. 3		
0. 0	20. 24. 10	0. 0	·1396	0. 0	·03338	1. 0	54 ·5	55 ·1
2. 4	25. 50	0. 58	·1393	2. 26	·03330	8. 0	55 ·2	56 ·5
2. 56	23. 0	2. 5	·1397	5. 15	·03360	21. 0	54 ·1	55 ·4
4. 33	24. 45	2. 55	·1394	10. 17	·03330	22. 0	54 ·7	56 ·2
5. 4	20. 20	4. 6	·1397	10. 30	·03335	23. 0	54 ·5	55 ·9
5. 12	21. 10	4. 54	·1390	10. 54	·03315			
5. 34	18. 20	5. 15	·1399	11. 15	·03320			
6. 4	21. 10	5. 27	·1394	21. 10	·03270			
6. 54	22. 0	6. 3	·1408	23. 59	·03295			
7. 40	21. 40	8. 19	·1399					
8. 44	20. 55	8. 38	·1402					
9. 7	20. 0	8. 50	·1396					
9. 49	20. 0	9. 11	·1400					
12. 4	16. 0	9. 24	·1396					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Feb. 9	° ′ ″	Feb. 9						
h m s		h m s		h m		h m	°	°
12. 8	20. 19. 0	13. 48	·1394					
12. 17	19. 30	13. 59	·1403					
12. 40	16. 55	14. 17	·1407					
13. 5	17. 15	14. 36	·1395					
13. 22	24. 0	15. 7	·1390					
13. 54	23. 0	15. 22	·1383					
14. 22	33. 50	15. 47	·1389					
15. 9	21. 30	16. 37	·1398					
15. 15	21. 45	16. 56	·1393					
15. 26	19. 30	17. 17	·1394					
16. 17	20. 30	17. 49	·1385					
16. 27	19. 0	18. 40	·1395					
16. 55	18. 50	20. 0	·1396					
17. 27	20. 50		***					
17. 57	20. 0	22. 43	·1383					
18. 10	22. 0	23. 59	·1380					
18. 27	21. 55							
18. 45	23. 0							
19. 16	21. 10							
21. 18	20. 45							
21. 39	22. 0							
21. 57	21. 0							
22. 18	21. 20							
22. 25	23. 30							
22. 48	22. 0							
23. 13	23. 0							
23. 59	26. 0							
Feb. 10		Feb. 10		Feb. 10		Feb. 10		
0. 0	20. 26. 0	0. 0	·1380	0. 0	·03440	1. 0	57·8	59·0
0. 19	27. 0	0. 30	·1380	3. 0	·03475	9. 0	58·1	59·6
0. 56	25. 10	1. 43	·1393	8. 23	·03510	21. 0	56·0	57·0
1. 27	24. 50	3. 30	·1392	9. 3	·03508	22. 0	55·6	56·7
1. 44	25. 50	4. 34	·1396	9. 58	·03513	23. 0	55·1	56·2
2. 27	25. 50	5. 0	·1393	10. 40	·03480			
3. 20	24. 35	5. 39	·1395	14. 12	·03475			
3. 50	22. 30	6. 34	·1384	14. 37	·05456			
4. 45	22. 20	6. 52	·1389	17. 4	·03458			
5. 34	21. 10	7. 15	·1382	20. 40	·03430			
6. 5	23. 0	7. 25	·1384	22. 50	·03390			
6. 14	22. 5	7. 47	·1378	23. 59	·03380			
6. 34	21. 10	8. 9	·1409					
6. 47	20. 0	8. 23	·1414					
7. 8	20. 25	8. 40	·1398					
7. 17	21. 55	8. 49	·1386					
7. 46	20. 20. 0	9. 19	·1368					
8. 16	19. 59. 0	9. 49	·1380					
8. 35	20. 6. 5	9. 59	·1411					
9. 10	17. 15	10. 19	·1407					
9. 14	17. 20	10. 45	·1388					
9. 20	18. 45	11. 18	·1378					
9. 29	18. 5	11. 47	·1382					
9. 40:	19. 10	13. 0	·1379					
9. 57	12. 30	13. 37	·1388					
10. 6	16. 0	13. 55	·1384					
10. 14	15. 0	14. 19	·1389					
10. 28	15. 15	14. 58	·1383					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Feb. 10	° ′ ″	Feb. 10						
h m s		h m s		h m		h m	°	°
10. 45	20. 18. 0	17. 15	·1383					
10. 56	14. 35	19. 17	·1393					
11. 16	13. 50	21. 15	·1384					
11. 18	14. 20	21. 27	·1388					
11. 35	15. 30	22. 5	·1380					
11. 58	14. 15	22. 15	·1386					
12. 30	17. 15	22. 30	·1381					
12. 47	17. 10		***					
13. 1	18. 35	23. 35	·1383					
13. 21	16. 0	23. 44	·1392					
13. 48	18. 10		(†)					
13. 59	20. 45							
14. 14	20. 30							
14. 29	18. 0							
15. 25	19. 15							
16. 4	18. 30							
17. 8	19. 40							
17. 55	18. 50							
18. 39	18. 45							
19. 20	19. 30							
19. 50	18. 0							
20. 46	20. 0							
21. 14	18. 55							
21. 22	20. 20							
	***							
22. 7	19. 50							
22. 17	20. 55							
22. 27	20. 15							
	***							
23. 46	22. 10							
23. 59	23. 0							
Feb. 11		Feb. 11		Feb. 11		Feb. 11		
0. 0	20. 23. 0		(†)	0. 0	·03380	0. 0	56·4	57·6
1. 43	25. 55	0. 16	·1384	1. 30	·03413	1. 0	56·6	57·9
2. 52	23. 50	1. 30	·1388	3. 17	·03398	2. 0	55·9	56·9
3. 0	24. 30	2. 31	·1385	5. 28	·03468	3. 0	55·6	57·0
4. 17	23. 40	4. 23	·1397	6. 5	·03495	9. 0	56·1	57·6
4. 52	21. 35	5. 9	·1376	6. 43	·03500	21. 0	56·5	58·0
5. 27	13. 50	5. 35	·1365	6. 59	·03478	22. 30	57·0	58·3
5. 40	10. 10	5. 54	·1371	7. 29	·03498	23. 0	56·9	58·2
5. 47	10. 30	6. 5	·1365	8. 53	·03515			
6. 5	16. 0	6. 18	·1361	9. 16	·03505			
6. 11	16. 55	6. 24	·1364	9. 45	·03460			
6. 24	14. 30	6. 36	·1358	9. 55	·03470			
6. 27	15. 20	6. 57	·1369	10. 6	·03435			
6. 43	14. 30	7. 23	·1345	10. 19	·03450			
7. 4	20. 5	7. 37	·1351	10. 30	·03436			
7. 18	15. 30	7. 54	·1348	10. 40	·03445			
7. 27	14. 0	8. 19	·1362	13. 20	·03415			
7. 45	17. 55	8. 34	·1352	13. 28	·03435			
7. 55	21. 40	9. 13	·1351	14. 25	·03355			
8. 9	17. 30	9. 28	·1382	14. 56	·03385			
8. 26	19. 20	9. 36	·1372	17. 54	·03380			
8. 48	17. 15	9. 45	·1384	23. 59	·03432			
9. 4	23. 0	9. 53	·1372					
9. 15	22. 40	10. 5	·1399					
9. 24	19. 10	10. 11	·1372					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Feb. 11 h m	° ′ ″	Feb. 11 h m		h m		h m	°	°
9. 33	20. 25. 30	10. 28	·1387					
9. 40	22. 0	10. 38	·1367					
9. 46	26. 15	11. 16	·1379					
9. 57	14. 0	11. 25	·1377					
10. 8	17. 35	11. 57	·1387					
10. 19	10. 0	12. 16	·1375					
10. 34	16. 0	12. 37	·1384					
10. 43	13. 40	13. 4	·1373					
10. 51	16. 40	13. 34	·1379					
11. 15	22. 40	13. 50	·1403					
11. 25	21. 45	14. 6	·1413					
11. 30	23. 10	14. 16	·1407					
11. 36	23. 0	14. 53	·1373					
11. 48	25. 25	15. 19	·1379					
11. 57	23. 30		***					
12. 16	21. 10	16. 51	·1386					
12. 28	21. 15	16. 58	·1379					
12. 40	19. 10	17. 56	·1392					
13. 31	16. 50	18. 32	·1389					
13. 44	25. 30	18. 56	·1395					
13. 58	21. 20	19. 43	·1380					
14. 15	22. 0	19. 57	·1386					
14. 27	17. 55	20. 9	·1384					
14. 36	16. 20	20. 34	·1395					
14. 47	15. 40	20. 58	·1385					
15. 5	17. 40	21. 10	·1389					
15. 16	17. 20	21. 23	·1388					
15. 21	19. 30	21. 51	·1383					
16. 5	21. 0	22. 17	·1370					
16. 12	22. 0	22. 49	·1392					
16. 27	20. 45	22. 54	·1383					
16. 56	21. 15	23. 7	·1393					
17. 25	23. 50	23. 15	·1383					
17. 47	22. 35		***					
17. 55	23. 0	23. 59	·1391					
18. 18	21. 0							
18. 43	22. 0							
19. 11	20. 15							
19. 43	20. 15							
20. 7	22. 10							
20. 10	22. 10							
20. 22	23. 55							
20. 37	22. 10							
20. 57	23. 0							
21. 23	20. 45							
21. 44	23. 50							
22. 4	22. 50							
22. 22	21. 0							
22. 35	25. 0							
22. 43	23. 0							
22. 56	26. 30							
23. 5	23. 45							
23. 19	22. 45							
23. 35	26. 30							
23. 48	25. 0							
	(†)							

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Feb. 12 h m	° ′ ″ (†)	Feb. 12 h m		Feb. 12 h m		Feb. 12 h m	°	°
0. 53	20. 24. 25	0. 0	·1391	0. 0	·03432	0. 0	57·5	58·9
0. 58	25. 30	0. 46	·1396	1. 8	·03430	1. 0	58·0	59·0
1. 35	24. 50	1. 10	·1391	1. 46	·03445	3. 0	57·5	58·8
1. 54	26. 30	1. 38	·1385	3. 4	·03455	9. 0	58·0	59·5
2. 15	24. 10	1. 58	·1396	3. 49	·03480	21. 0	57·3	58·9
2. 35	26. 55	2. 48	·1385	5. 7	·03505	22. 0	56·7	58·2
3. 25	24. 50	3. 6	·1394	5. 24	·03525	23. 0	56·4	58·0
4. 22	24. 40	3. 40	·1399	5. 54	·03512			
4. 37	27. 10	4. 19	·1385	6. 9	·03536			
4. 47	25. 20	4. 43	·1394	6. 47	·03493			
5. 19	24. 0	5. 5	·1390	7. 42	·03518			
5. 40	24. 30	5. 19	·1374	8. 35	·03480			
5. 59	21. 40	5. 39	·1385	8. 44	·03490			
6. 14	23. 0	6. 3	·1363	8. 50	·03478			
6. 35	3. 10	6. 16	·1409	9. 35	·03500			
6. 48	11. 0	6. 36	·1398	10. 26	·03505			
6. 59	16. 45	6. 46	·1401	11. 55	·03480			
7. 6	15. 30	6. 57	·1375	12. 12	·03465			
7. 17	20. 0	7. 4	·1382	13. 18	·03477			
7. 25	16. 0	7. 13	·1369	13. 47	·03454			
7. 35	20. 55	7. 26	·1383	16. 23	·03450			
7. 45	18. 0	7. 39	·1370	21. 25	·03453			
7. 55	21. 55	7. 50	·1386	23. 30	·03422			
8. 12	8. 30	8. 16	·1414	23. 59	·03430			
8. 18	10. 0	8. 38	·1389					
8. 27	7. 35	8. 54	·1366					
8. 55	16. 5	9. 25	·1368					
9. 4	15. 50	9. 33	·1365					
9. 8	17. 55	9. 57	·1368					
9. 20	13. 10	10. 3	·1362					
9. 45	16. 0	10. 29	·1374					
10. 0	15. 10	10. 47	·1373					
10. 15	11. 50	11. 19	·1379					
10. 30	8. 30	11. 43	·1374					
10. 45	10. 10	12. 16	·1392					
11. 5	13. 10	12. 59	·1382					
11. 25	15. 0	13. 26	·1388					
11. 35	13. 0	13. 56	·1388					
12. 0	16. 0	14. 9	·1392					
12. 25	6. 0	14. 24	·1387					
12. 55	10. 50	14. 55	·1383					
13. 40	21. 0	16. 5	·1386					
14. 5	18. 5	16. 37	·1370					
14. 20	19. 50	17. 6	·1375					
15. 17	18. 10	17. 36	·1389					
15. 30	19. 45	18. 7	·1406					
15. 55	17. 0	18. 29	·1398					
16. 18	19. 20	19. 4	·1398					
16. 45	27. 30	19. 39	·1386					
17. 0	26. 50	20. 17	·1392					
17. 8	24. 30	21. 10	·1383					
17. 48	20. 50		***					
18. 7	21. 55	22. 5	·1393					
18. 29	21. 5	22. 42	·1385					
19. 27	19. 50	23. 6	·1373					
19. 55	22. 10	23. 25	·1382					
20. 45	22. 55	23. 59	·1380					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Indications of the Magnetometers

Greenwich Mean Solar Time.	Western Declination.
Feb. 17 h m	° ′ ″
16. 31	20. 22. 25
16. 57	21. 5
17. 47	20. 0
18. 36	20. 20
21. 16	18. 25
21. 39	19. 20
21. 50	18. 20
23. 59	24. 0
Feb. 18	
0. 0	20. 24. 0
2. 0	25. 40
3. 41	23. 0
8. 39	21. 30
9. 0	18. 50
9. 19	20. 0
	***
10. 58	20. 0
11. 36	21. 20
11. 47	20. 40
12. 18	20. 40
12. 26	21. 50
13. 4	20. 45
13. 19	22. 50
13. 46	22. 0
13. 57	22. 30
14. 21	21. 30
15. 28	21. 25
15. 39	20. 50
16. 45	20. 10
17. 7	20. 50
17. 46	19. 50
18. 43	21. 10
19. 48	19. 45
21. 8	18. 10
22. 44	21. 20
23. 59	24. 10
Feb. 19	
0. 0	20. 24. 10
2. 9	24. 50
2. 40	23. 25
3. 50	22. 0
6. 55	20. 50
8. 58	20. 30
9. 7	19. 10
10. 5	20. 15
10. 20	19. 15
12. 28	21. 35
16. 49	21. 40
20. 53	19. 0
22. 44	21. 0
23. 24	22. 40
23. 34	24. 5
23. 39	23. 40
23. 49	25. 15
23. 59	24. 50

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
h m	
Feb. 18	
0. 0	·1398
4. 0	·1408
6. 40	·1412
7. 28	·1407
7. 53	·1409
8. 37	·1407
8. 58	·1401
9. 55	·1407
10. 15	·1405
10. 44	·1406
	***
12. 0	·1402
12. 59	·1407
13. 26	·1410
14. 57	·1406
18. 30	·1407
19. 22	·1403
19. 58	·1407
	***
21. 56	·1408
	***
22. 49	·1404
23. 30	·1408
23. 59	·1405
Feb. 19	
0. 0	·1405
0. 15	·1407
2. 4	·1412
2. 37	·1408
3. 18	·1411
3. 56	·1407
5. 25	·1411
5. 35	·1409
6. 56	·1410
7. 57	·1406
8. 20	·1409
8. 54	·1403
10. 20	·1408
10. 47	·1404
16. 9	·1406
19. 30	·1413
20. 1	·1408
20. 53	·1410
22. 39	·1400

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m	
Feb. 18	
0. 0	·03320
9. 58	·03320
21. 0	·03335
23. 59	·03310
Feb. 19	
0. 0	·03310
2. 2	·03356
5. 57	·03381
14. 0	·03370
21. 0	·03343
22. 50	·03320
23. 59	·03325

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
Feb. 18		
1. 0	55·3	56·8
2. 0	55·1	56·5
3. 0	54·6	56·0
9. 0	55·3	56·7
21. 0	56·0	57·5
22. 0	55·4	57·0
23. 0	55·0	56·9
Feb. 19		
0. 0	55·8	57·6
1. 0	56·3	58·1
3. 0	56·5	58·2
9. 0	57·1	58·6
21. 0	56·1	57·5
22. 0	55·8	57·4
23. 0	55·9	57·8

Greenwich Mean Solar Time.	Western Declination.
h m	° ′ ″
Feb. 20	
0. 0	20. 24. 50
1. 25	26. 35
5. 20	21. 40
5. 57	22. 25
8. 3	20. 50
8. 19	21. 15
8. 25	21. 55
8. 55	18. 30
9. 13	17. 45
10. 27	19. 10
10. 44	18. 45
11. 50	21. 40
12. 24	17. 20
13. 0	20. 30
13. 44	21. 25
14. 7	20. 20
15. 0	21. 10
16. 3	20. 30
16. 27	21. 0
19. 13	20. 15
20. 50:	19. 0
23. 59	24. 50
Feb. 21	
0. 0	20. 24. 50
0. 34	24. 0
0. 58	25. 0
1. 54	24. 50
2. 8	23. 40
2. 30	23. 55
4. 24	21. 15
5. 25	20. 35
6. 44	22. 0
6. 55	21. 40
7. 14	21. 55
9. 3	21. 0
13. 30	20. 55
15. 12	21. 20
16. 15	21. 0
16. 39	23. 0
17. 15	20. 10
17. 38	20. 0
18. 8	22. 0
18. 55	20. 30
20. 8	20. 0
	***
22. 30	21. 20
22. 41	23. 5
23. 4	22. 50
23. 34	24. 0
23. 59	25. 0

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
Feb. 19 h m	·1402 (†)
23. 47	
Feb. 20	
	(†)
0. 9	·1401
1. 12	·1402
1. 25	·1405
1. 58	·1397
3. 40	·1409
7. 5	·1409
7. 43	·1400
7. 48	·1405
8. 8	·1399
8. 18	·1394
8. 29	·1400
9. 12	·1391
10. 59	·1400
	***
12. 0	·1414
13. 17	·1403
13. 44	·1407
14. 18	·1402
18. 18	·1408
	***
23. 6	·1398
23. 59	·1403
Feb. 21	
0. 0	·1403
0. 34	·1399
0. 53	·1403
1. 19	·1401
1. 43	·1406
2. 4	·1402
3. 19	·1408
4. 51	·1407
5. 29	·1411
6. 27	·1410
7. 10	·1404
8. 39	·1407
16. 39	·1404
17. 19	·1410
18. 9	·1404
18. 26	·1408
	***
22. 58	·1399
23. 59	·1406

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
Feb. 20 h m	
0. 0	·03325
4. 12	·03405
9. 8	·03430
11. 35	·03412
12. 11	·03391
17. 8	·03370
21. 24	·03339
23. 59	·03305
Feb. 21	
0. 0	·03305
5. 51	·03394
14. 56	·03395
23. 59	·03348

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
Feb. 20		
0. 0	56·4	58·0
1. 0	57·7	59·0
2. 0	57·0	58·7
3. 0	57·3	59·0
9. 0	57·8	59·3
21. 0	56·3	57·3
22. 0	55·9	56·9
23. 0	55·4	56·6
Feb. 21		
0. 0	56·3	57·3
1. 0	56·6	58·0
2. 0	56·4	57·8
3. 0	56·7	58·0
9. 0	57·3	58·8
21. 0	56·3	57·9
22. 0	56·5	58·1
23. 0	56·6	58·2

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Feb. 22		Feb. 22		Feb. 22		Feb. 22		
h m	° ′ ″	h m		h m		h m	°	°
0. 0	20. 25. 0	0. 0	·1406	0. 0	·03348	0. 0	56 ·9	58 ·2
1. 26	24. 50	0. 35	·1413	3. 6	·03360	1. 0	56 ·9	58 ·2
3. 56	22. 30		***	5. 14	·03390	2. 0	56 ·5	57 ·3
5. 43	21. 50	6. 10	·1400	18. 0	·03376	3. 0	56 ·5	57 ·5
6. 10	22. 55	7. 16	·1406	21. 47	·03340	9. 0	57 ·1	58 ·5
7. 36	22. 0	7. 43	·1404	22. 38	·03307	21. 0	56 ·0	57 ·3
9. 16	20. 55	9. 9	·1408	23. 59	·03296	22. 0	55 ·3	56 ·6
16. 45	21. 20	12. 5	·1403			23. 0	55 ·3	56 ·8
16. 58	20. 25	19. 8	·1408					
17. 11	21. 0	20. 57	·1401					
20. 24	19. 30	21. 45	·1401					
21. 48	21. 0	22. 6	·1396					
22. 3	20. 45	23. 19	·1395					
23. 13	23. 50	23. 39	·1398					
23. 24	23. 20		(†)					
23. 32	24. 20							
	(†)							
Feb. 23		Feb. 23		Feb. 23		Feb. 23		
	(†)		(†)	0. 0	·03296	0. 0	56 ·0	57 ·5
1. 2	20. 24. 50	0. 29	·1399	5. 10	·03380	1. 0	56 ·8	58 ·2
2. 7	25. 30	2. 54	·1400	8. 30	·03370	2. 0	56 ·6	57 ·9
3. 21	24. 50	3. 20	·1408	11. 24	·03332	3. 0	56 ·7	58 ·0
4. 34	22. 55	4. 5	·1407	22. 26	·03210	9. 0	56 ·3	57 ·2
7. 6	22. 0	4. 16	·1413	23. 59	·03202	21. 5	54 ·3	55 ·7
7. 36	20. 20	5. 55	·1411					
8. 0	21. 15	6. 3	·1416					
9. 57	21. 50	7. 33	·1408					
10. 27	21. 0	8. 9	·1413					
12. 30	21. 30	8. 19	·1409					
13. 55	20. 45	12. 54	·1406					
14. 24	22. 30	13. 6	·1408					
15. 9:	20. 0	13. 45	·1405					
15. 39	21. 55	14. 27	·1412					
16. 10	20. 20	15. 4	·1407					
16. 29	20. 25	16. 0	·1413					
16. 50	20. 0	18. 53	·1417					
17. 2	20. 10	21. 20	·1407					
19. 17	20. 10	21. 55	·1410					
20. 44:	19. 25	23. 59	·1413					
21. 43	20. 0							
22. 40	22. 0							
23. 59	26. 10							
Feb. 24		Feb. 24		Feb. 24		Feb. 24		
0. 0	20. 26. 20	0. 0	·1413	0. 0	·03202	0. 0	54 ·6	55 ·7
0. 30	26. 0	0. 50	·1407	4. 44	·03293	8. 45	56 ·1	57 ·8
1. 14	26. 25	3. 47	·1414	10. 13	·03300	21. 0	54 ·8	56 ·2
2. 55	25. 20	4. 9	·1409	14. 57	·03295	22. 0	53 ·1	55 ·2
3. 55	23. 20		***	21. 8	·03260	23. 0	52 ·8	55 ·0
4. 7	21. 50	4. 57	·1418	23. 59	·03190			
5. 54	22. 0	6. 35	·1413					
6. 22	21. 20	7. 43	·1418					
7. 38	22. 0	7. 57	·1414					
7. 56	21. 15	9. 37	·1412					
8. 24	22. 0	10. 2	·1419					
9. 7	21. 0	10. 20	·1412					
9. 28	21. 15	10. 35	·1421					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Feb. 24		Feb. 24						
h m	° ′ ″	h m		h m		h m	°	°
10. 7	20. 19. 20	10. 48	·1415					
10. 34	20. 50	11. 0	·1420					
10. 50	20. 35	11. 32	·1412					
11. 5	21. 15	11. 55	·1419					
11. 27	20. 45	12. 36	·1413					
12. 3	21. 50	14. 14	·1411					
12. 16	20. 30	19. 18	·1418					
13. 21	21. 15	22. 19	·1406					
13. 54	20. 15	23. 52	·1408					
15. 24	20. 50		(†)					
16. 25	20. 5							
16. 48	20. 50							
18. 28	20. 50							
20. 9	20. 10							
22. 25	21. 40							
22. 51	24. 0							
23. 59	26. 10							
Feb. 25		Feb. 25		Feb. 25		Feb. 25		
0. 0	20. 26. 10		(†)	0. 0	·03190	0. 0	54 ·5	55 ·9
0. 13	26. 10	0. 16	·1415	1. 37	·03230	1. 0	55 ·0	56 ·5
0. 35	27. 0	1. 8	·1417	2. 26	·03220	2. 0	54 ·5	56 ·0
1. 7	25. 55	1. 40	·1421	3. 14	·03220	3. 0	55 ·0	56 ·1
1. 39	27. 20	1. 59	·1419	6. 12	·03270	9. 0	56 ·0	57 ·7
2. 9	27. 30	3. 14	·1420	11. 8	·03273	21. 0	55 ·0	54 ·9
4. 13	23. 5	3. 21	·1428	13. 59	·03251	22. 0	54 ·2	54 ·3
4. 55	23. 0	4. 48	·1428	19. 13	·03256	23. 0	54 ·0	54 ·1
5. 34	21. 10	5. 26	·1420		(†)			
6. 26	22. 45	6. 27	·1426	21. 0	·03207*			
6. 59	18. 35	6. 51	·1417					
7. 50:	22. 10	7. 49	·1426					
8. 26	21. 15	8. 9	·1423					
9. 0	22. 5		***					
10. 22	21. 55	10. 59	·1428					
10. 41	21. 5	11. 33	·1425					
11. 32	21. 30	11. 49	·1429					
11. 47	20. 30	12. 1	·1428					
11. 55	21. 20	12. 17	·1431					
12. 22	20. 25	12. 36	·1426					
12. 30	20. 55	13. 4	·1424					
13. 14	18. 55	13. 21	·1428					
13. 32	19. 25	13. 34	·1425					
14. 22	18. 15	13. 48	·1428					
15. 7	21. 30	14. 16	·1419					
15. 37	19. 30		***					
16. 19	20. 50	18. 16	·1426					
	***	19. 28	·1426					
19. 14	21. 30		(†)					
	(†)	21. 0	·1432*					
21. 0	20. 28*							
Feb. 26		Feb. 26		Feb. 26		Feb. 26		
	(†)		(†)		(†)	0. 0	54 ·0	54 ·0
1. 0	20. 27. 56*	1. 0	·1432*	1. 0	·03131*	1. 0	54 ·0	54 ·0
2. 24	26. 55	2. 33	·1432	2. 30	·03120	2. 0	53 ·8	53 ·8
	***	3. 4	·1428	3. 54	·03156	3. 0	54 ·7	55 ·2
3. 15	24. 50	3. 47	·1433	8. 55	·03175	9. 0	54 ·2	55 ·5
5. 20	24. 50	6. 9	·1433	15. 0	·03127	21. 0	53 ·0	53 ·6
6. 15	23. 50	6. 26	·1428	21. 3	·03072	22. 0	51 ·0	52 ·5

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
Mar. 4		Mar. 4						
h m s	° ′ ″	h m s		h m		h m	°	°
20. 55	20. 20. 0	23. 50	·1433					
21. 17	20. 10	23. 59	·1434					
21. 22	22. 0							
21. 34	21. 10							
21. 47	22. 0							
22. 0	21. 10							
22. 7	22. 40							
22. 15	22. 10							
22. 54	22. 45							
23. 8	24. 45							
23. 29	24. 30							
23. 52	27. 50							
23. 59	28. 0							
Mar. 5		Mar. 5		Mar. 5		Mar. 5		
0. 0	20. 28. 0	0. 0	·1434		(†)	0. 0	50 ·3	51 ·0
0. 36	28. 35	0. 45	·1437	1. 0	·02616*	1. 0	50 ·3	51 ·2
0. 42	30. 0	2. 6	·1432	1. 43	·02625	2. 0	50 ·6	51 ·4
1. 36	30. 0	2. 25	·1437	7. 10	·02690	3. 0	50 ·8	51 ·7
4. 29	25. 0	2. 35	·1434	9. 58	·02666	9. 0	50 ·9	51 ·7
5. 25	25. 30	4. 9	·1432	16. 24	·02615	21. 0	49 ·0	49 ·4
5. 48	23. 40	4. 25	·1428	21. 2	·02572	22. 0	49 ·5	50 ·1
6. 17	24. 50	5. 19	·1436	23. 35	·02580	23. 0	49 ·7	50 ·4
6. 28	24. 30	5. 40	·1431		(†)			
6. 45	25. 0	6. 10	·1433					
7. 5	24. 35	6. 52	·1427					
7. 39	25. 30	7. 55	·1433					
8. 4	26. 0	8. 11	·1429					
8. 45	24. 35	8. 59	·1432					
8. 59	25. 10	9. 23	·1439					
10. 0	20. 40	10. 35	·1426					
10. 44	23. 0	11. 37	·1429					
12. 7	21. 0	12. 5	·1425					
12. 49	22. 15	12. 50	·1425					
13. 24	22. 20	13. 46	·1430					
13. 27	23. 20	14. 19	·1424					
13. 39	21. 25	14. 55	·1428					
13. 46	22. 0	15. 14	·1427					
14. 0	20. 50	16. 37	·1437					
14. 18	21. 40	17. 16	·1439					
14. 35	21. 50	18. 2	·1433					
14. 47	22. 55	18. 35	·1439					
15. 7	22. 30	19. 27	·1437					
16. 3	25. 0	19. 45	·1430					
16. 44	21. 35	20. 46	·1428					
17. 5	20. 20	21. 42	·1419					
17. 50	22. 5	22. 19	·1429					
17. 58	21. 30	23. 16	·1422					
18. 16	22. 30	23. 59	·1419					
18. 45	22. 0							
19. 17	22. 50							
19. 47	22. 10							
20. 44	24. 55							
21. 15	24. 55							
21. 37	26. 55							
21. 49	26. 15							
22. 27	29. 10							

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
Mar. 5								
h m s	° ′ ″	h m		h m		h m	°	°
22. 55	20. 30. 25							
23. 59	30. 15							
Mar. 6		Mar. 6		Mar. 6		Mar. 6		
0. 0	20. 30. 15	0. 0	·1419		(†)	0. 0	49 ·8	49 ·7
0. 37	30. 0	1. 9	·1420	0. 35	·02583	1. 0	50 ·6	51 ·2
0. 58	30. 10	1. 33	·1416	2. 6	·02650	2. 0	50 ·6	51 ·4
1. 5	31. 20		***	2. 18	·02642	3. 0	50 ·8	51 ·6
1. 23	30. 15	2. 14	·1429	2. 55	·02660	9. 7	50 ·1	51 ·8
1. 33	31. 10	2. 34	·1416	3. 42	·02710	21. 0	49 ·2	50 ·1
1. 39	30. 10	2. 38	·1420	5. 8	·02725	22. 0	49 ·2	50 ·0
2. 0	32. 0	2. 55	·1416	5. 53	·02770	23. 0	49 ·2	50 ·1
2. 7	34. 20	3. 3	·1402	7. 35	·02733			
2. 17	33. 0	3. 25	·1415	7. 50	·02740			
2. 27	33. 35	3. 37	·1414	8. 9	·02713			
2. 30	35. 20	3. 58	·1426	9. 22	·02680			
2. 46	34. 0	4. 17	·1415	13. 39	·02680			
2. 55	29. 40	4. 54	·1416	14. 53	·02660			
3. 6	27. 15	5. 3	·1419	15. 26	·02625			
3. 21	30. 20	5. 26	·1395	15. 53	·02620			
3. 35	30. 15	5. 48	·1402	16. 27	·02635			
3. 59	33. 25	6. 5	·1416	17. 5	·02626			
4. 45	29. 10	6. 26	·1425	18. 43	·02635			
5. 0	29. 20	6. 44	·1414	22. 43	·02589			
5. 23	20. 50	7. 17	·1425	23. 59	·02600			
5. 47	14. 0	7. 42	·1415					
6. 4	17. 5	8. 8	·1447					
6. 29	25. 0	8. 34	·1415					
6. 50	24. 10	8. 57	·1432					
7. 20	26. 50	9. 25	·1403					
7. 30	25. 0	9. 40	·1394					
7. 47	13. 5	9. 58	·1384					
8. 6	17. 45	10. 10	·1401					
8. 19	13. 20	10. 36	·1417					
8. 44	6. 10	10. 56	·1410					
8. 57	8. 25	11. 29	·1422					
9. 4	6. 20	11. 49	·1413					
9. 20	4. 25	12. 26	·1423					
9. 36	10. 0	12. 45	·1420					
10. 9	3. 35	12. 54	·1423					
10. 18	3. 55	13. 6	·1417					
10. 44	13. 10	13. 34	·1420					
11. 18	20. 20	13. 49	·1426					
11. 38	20. 15	14. 6	·1420					
11. 48	22. 0	14. 27	·1421					
12. 15	24. 0	14. 54	·1414					
12. 29	23. 35	15. 9	·1426					
12. 45	22. 10	15. 48	·1430					
13. 0	23. 0	16. 9	·1417					
13. 14	23. 0	16. 36	·1419					
13. 27	24. 15	16. 57	·1425					
13. 46	22. 20		***					
14. 10	22. 20	20. 9	·1424					
14. 47	27. 0	21. 6	·1421					
15. 25	22. 0		***					
15. 50	23. 10	23. 59	·1422					
16. 13	27. 0							
16. 54	22. 30							

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Mar. 6								
h m	° ′ ″	h m		h m		h m	°	°
17. 10	20. 23. 45							
18. 19	23. 0							
18. 48	23. 30							
	***							
19. 28	22. 30							
20. 25	24. 10							
23. 5	27. 0							
23. 59	26. 45							
Mar. 7		Mar. 7		Mar. 7		Mar. 7		
0. 0	20. 26. 45	0. 0	·1422	0. 0	·02600	0. 0	49 ·8	50 ·5
0. 20	28. 10	2. 9	·1424	3. 20	·02660	1. 0	50 ·0	50 ·8
0. 28	27. 20	2. 35	·1429	8. 34	·02665	2. 0	49 ·9	50 ·8
2. 59	25. 55		***	9. 10	·02628	3. 0	50 ·0	51 ·0
4. 47	24. 50	7. 4	·1431	10. 43	·02572	9. 0	49 ·5	50 ·7
6. 15	25. 5	7. 23	·1439	11. 6	·02610	21. 0	47 ·6	48 ·2
7. 13	24. 50	7. 50	·1430	11. 25	·02590	22. 0	48 ·1	49 ·0
7. 34	25. 10	8. 0	·1432	11. 36	·02609	23. 0	48 ·4	49 ·2
7. 49	24. 0	8. 19	·1423	11. 55	·02579			
8. 6	25. 55	8. 42	·1465	12. 27	·02583			
8. 19	25. 30	8. 54	·1447	12. 56	·02510			
8. 37	7. 0	9. 7	·1406	13. 58	·02529			
8. 44	9. 30	9. 30	·1420	14. 37	·02507			
8. 49	6. 0	9. 48	·1410	15. 24	·02559			
9. 11	0. 50	10. 6	·1390	16. 2	·02481			
9. 15	20. 1. 20	10. 34	·1376	16. 14	·02486			
9. 27	19. 55. 0	11. 2	·1398	17. 9	·02540			
10. 4	20. 9. 30	11. 15	·1380	18. 16	·02540			
10. 26	3. 5	11. 32	·1396	19. 5	·02555			
10. 37	2. 5	11. 50	·1391	22. 40	·02517			
10. 59	6. 5	12. 13	·1398	23. 59	·02530			
11. 14	11. 0	12. 26	·1413					
11. 30	6. 0	12. 40	·1400					
11. 39	10. 0	12. 57	·1398					
11. 48	13. 50	13. 49	·1433					
12. 4	15. 0	14. 15	·1427					
12. 24	25. 0	14. 49	·1409					
12. 35	24. 20	15. 19	·1415					
12. 42	25. 0	15. 49	·1395					
13. 0	21. 0	16. 7	·1407					
13. 22	20. 50	16. 37	·1414					
13. 30	22. 25	17. 19	·1435					
13. 50	20. 55	17. 49	·1418					
14. 16	11. 0	18. 6	·1413					
14. 33	11. 50	18. 24	·1418					
15. 20	26. 55	18. 49	·1413					
15. 54	21. 30	19. 15	·1427					
16. 7	25. 0	19. 34	·1416					
16. 13	25. 30	19. 47	·1424					
16. 27	26. 55	19. 55	·1415					
16. 55	24. 0	20. 7	·1422					
17. 23	25. 15	20. 21	·1417					
17. 37	24. 50	20. 45	·1416					
17. 45	22. 10	21. 39	·1419					
18. 0	23. 0	22. 21	·1414					
18. 15	22. 40	22. 49	·1419					
18. 21	24. 0	23. 2	·1417					
18. 37	24. 15	23. 59	·1424					

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Mar. 7								
h m	° ′ ″	h m		h m		h m	°	°
18. 57	20. 21. 15							
19. 10	23. 10							
19. 26	22. 0							
19. 39	23. 45							
19. 46	22. 20							
19. 57	23. 0							
20. 26	20. 55							
20. 45	22. 30							
20. 59	21. 20							
21. 46	24. 0							
21. 55	23. 30							
22. 30	24. 50							
22. 47	26. 20							
22. 57	25. 20							
23. 59	26. 0							
Mar. 8		Mar. 8		Mar. 8		Mar. 8		
0. 0	20. 26. 0	0. 0	·1424	0. 0	·02530	0. 0	48 ·6	49 ·4
0. 57	26. 45	0. 28	·1432	2. 52	·02599	1. 0	49 ·2	50 ·0
1. 24	29. 30	1. 24	·1440	4. 10	·02615	3. 0	49 ·7	50 ·4
1. 47	30. 10	1. 49	·1436	5. 46	·02603	9. 0	49 ·4	50 ·3
2. 5	27. 30	2. 1	·1428	7. 49	·02673	21. 0	48 ·0	48 ·7
2. 19	28. 0	2. 18	·1436	8. 5	·02649	22. 0	48 ·1	48 ·9
2. 26	27. 10	2. 26	·1433	9. 2	·02640	23. 0	48 ·1	49 ·0
3. 0	30. 55	2. 34	·1441	9. 42	·02570			
3. 35	26. 5	2. 44	·1435	9. 57	·02592			
4. 25	24. 30	2. 50	·1438	10. 27	·02556			
4. 37	25. 10	3. 3	·1429	11. 30	·02575			
5. 0	24. 10	3. 22	·1425	12. 39	·02568			
5. 55	25. 5	3. 34	·1433	15. 5	·02580			
6. 24	24. 15	3. 40	·1428	23. 30	·02510			
6. 44	21. 0	4. 18	·1422	23. 59	·02515			
7. 10	7. 30	4. 37	·1431					
7. 23	6. 20	4. 45	·1429					
7. 46	10. 25		***					
8. 0	20. 50	5. 33	·1432					
8. 34	21. 0	5. 43	·1429					
8. 58	22. 35	5. 55	·1439					
9. 15	31. 15	6. 15	·1432					
9. 29	26. 30	6. 34	·1412					
9. 35	27. 0	7. 0	·1395					
9. 51	19. 55	7. 17	·1398					
10. 3	27. 30	7. 54	·1432					
10. 13	27. 45	8. 6	·1411					
10. 50	20. 15	8. 37	·1418					
11. 2	21. 0	9. 7	·1437					
11. 20	20. 0	9. 19	·1427					
11. 56	22. 5	9. 28	·1434					
12. 15	25. 50	9. 37	·1423					
12. 45	23. 30	9. 57	·1459					
13. 8	25. 50	10. 29	·1417					
14. 55	22. 55	10. 49	·1424					
16. 16	23. 20	12. 14	·1417					
16. 27	22. 30	12. 25	·1421					
17. 36	23. 10	12. 40	·1414					
17. 49	21. 55	13. 20	·1417					
18. 0	22. 40	13. 28	·1413					
18. 16	22. 10	13. 45	·1419					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Mar. 13 h m	° ′ ″	Mar. 13 h m		Mar. 13 h m		Mar. 13 h m	°	°
0. 40	20. 30. 20	1. 6	·1426	2. 42	·02540	2. 0	48 ·0	48 ·3
1. 6	29. 30		(†)	5. 9	·02599	3. 0	48 ·2	49 ·1
	(†)	3. 0	·1434	8. 56	·02640	9. 0	49 ·2	50 ·9
2. 37	27. 10	3. 34	·1430	13. 29	·02623	21. 0	50 ·9	52 ·6
2. 54	27. 50	3. 57	·1418	13. 45	·02633	22. 30	50 ·9	52 ·9
3. 44	26. 25	4. 47	·1427	14. 15	·02604	23. 0	50 ·9	52 ·9
4. 28	23. 50	7. 50	·1426	15. 7	·02624			
6. 18	25. 30	8. 16	·1428	15. 49	·02620			
6. 26	25. 0	9. 31	·1422	16. 37	·02648			
7. 38	25. 30	10. 10	·1427	17. 39	·02660			
8. 54	23. 20	10. 25	·1424	19. 30	·02693			
9. 37	24. 0	10. 50	·1430	21. 27	·02696			
10. 37	22. 0	11. 12	·1424	23. 27	·02695			
11. 10	23. 0	11. 27	·1429	23. 59	·02700			
11. 25	24. 15	11. 55	·1421					
11. 34	23. 25	12. 50	·1429					
12. 6	22. 10	13. 0	·1424					
12. 19	24. 0	13. 17	·1422					
12. 55	21. 0	13. 34	·1428					
13. 6	21. 50	13. 45	·1422					
13. 29	20. 45	14. 11	·1435					
13. 58	25. 50	14. 46	·1410					
14. 18	22. 10	14. 51	·1414					
14. 44	22. 10	15. 5	·1408					
15. 18	25. 35	15. 44	·1422					
15. 45	23. 0	16. 9	·1413					
16. 32	20. 10	17. 36	·1426					
16. 43	23. 0	18. 6	·1422					
17. 24	21. 5	19. 6	·1420					
17. 29	21. 30	19. 24	·1426					
17. 55	19. 0	19. 49	·1428					
18. 15	19. 0	20. 47	·1418					
18. 24	20. 0	21. 21	·1412					
18. 40	21. 0	21. 41	·1416					
18. 54	22. 0	21. 57	·1412					
19. 15	21. 15	22. 11	·1413					
19. 34	22. 10	22. 23	·1410					
20. 5	22. 55	22. 34	·1415					
20. 26	21. 55	23. 4	·1408					
20. 55	22. 30	23. 59	·1415					
21. 7	24. 0							
21. 29	23. 30							
22. 8	27. 0							
22. 25	26. 55							
22. 29	27. 50							
23. 2	26. 55							
23. 17	27. 35							
23. 59	27. 0							
Mar. 14 h m	° ′ ″	Mar. 14 h m		Mar. 14 h m		Mar. 14 h m	°	°
0. 0	20. 27. 0	0. 0	·1415	0. 0	·02700	0. 0	51 ·9	53 ·5
0. 17	28. 50	0. 40	·1420	6. 15	·02835	1. 0	52 ·0	53 ·4
0. 45	27. 55	0. 56	·1425	6. 33	·02829	3. 0	53 ·0	53 ·9
0. 54	28. 10	1. 27	·1423	6. 46	·02848	9. 0	52 ·1	53 ·2
1. 28	28. 45	1. 50	·1417	7. 22	·02820	21. 0	52 ·6	54 ·0
2. 27	27. 30	2. 47	·1421	7. 47	·02820	22. 0	52 ·3	54 ·1
2. 59	28. 40	3. 9	·1414	8. 6	·02836	23. 0	53 ·0	54 ·7
3. 50	26. 15	3. 40	·1416	9. 4	·02829			

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Mar. 14 h m	° ′ ″	Mar. 14 h m		Mar. 14 h m		h m	°	°
4. 27	20. 27. 0	4. 5	·1427	10. 50	·02790			
4. 33	28. 0	4. 35	·1416	12. 36	·02810			
4. 59	26. 0	4. 57	·1412	16. 10	·02805			
5. 14	26. 55	5. 5	·1414	17. 3	·02800			
5. 34	22. 55	5. 20	·1408	17. 25	·02780			
6. 0	22. 45	5. 43	·1416	21. 6	·02810			
6. 17	23. 50	6. 10	·1420	23. 30	·02780			
6. 36	19. 0	6. 30	·1414	23. 59	·02810			
6. 45	12. 10	6. 47	·1433					
7. 4	14. 5	6. 57	·1442					
7. 9	13. 50	7. 10	·1436					
7. 23	17. 0	7. 25	·1424					
7. 37	22. 10	7. 51	·1401					
7. 47	21. 10	8. 16	·1416					
8. 10	22. 30	8. 35	·1410					
8. 37	21. 45	8. 55	·1418					
9. 8	23. 0	10. 4	·1419					
9. 55	21. 15	10. 23	·1439					
10. 4	22. 0	10. 39	·1436					
10. 18	15. 0	11. 9	·1413					
10. 42	18. 0		***					
11. 10	19. 30	13. 24	·1418					
11. 25	19. 5	14. 20	·1416					
11. 43	20. 50	15. 3	·1420					
12. 59	23. 50	15. 25	·1418					
14. 24	22. 55	15. 59	·1423					
15. 8	21. 0	16. 44	·1408					
15. 26	23. 20	17. 19	·1427					
15. 59	23. 0	18. 0	·1419					
16. 40	31. 0	19. 19	·1421					
16. 57	30. 30	20. 57	·1409					
17. 35	21. 10	23. 3	·1404					
17. 54	21. 5	23. 59	·1409					
18. 0	22. 0							
18. 35	20. 55							
18. 55	21. 15							
19. 15	20. 35							
21. 25	22. 30							
23. 10	26. 5							
23. 59	26. 30							
Mar. 15 h m	° ′ ″	Mar. 15 h m		Mar. 15 h m		Mar. 15 h m	°	°
0. 0	20. 26. 30	0. 0	·1409	0. 0	·02810	0. 0	53 ·4	55 ·0
1. 34	27. 55	2. 4	·1413	3. 49	·02885	1. 0	53 ·7	55 ·2
2. 34	27. 50	2. 19	·1408	8. 37	·02916	2. 0	53 ·9	55 ·2
2. 40	26. 30	2. 37	·1416	10. 51	·02910	3. 0	54 ·0	55 ·2
2. 59	26. 50	2. 47	·1413	13. 58	·02880	9. 0	54 ·0	55 ·1
3. 17	26. 0	3. 3	·1418	17. 42	·02868	21. 0	52 ·2	53 ·6
3. 35	26. 5	3. 20	·1414	22. 56	·02825	22. 0	52 ·3	53 ·8
3. 45	25. 30	5. 0	·1420	23. 59	·02842	23. 0	53 ·0	54 ·2
6. 20	24. 0	5. 28	·1417					
6. 40	20. 0	6. 20	·1420					
7. 0	18. 55	6. 40	·1415					
7. 53	23. 55	7. 7	·1424					
8. 3	23. 0	7. 34	·1422					
9. 3	22. 40	8. 9	·1425					
9. 29	21. 5	8. 29	·1418					
9. 47	22. 15	8. 58	·1420					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Readings of Thermometers. Of V.F. Magnet.
Mar. 15		Mar. 15						
h m	° ′ ″	h m		h m		h m	°	°
10. 18	20. 21. 40	10. 14	·1416					
10. 34	19. 0	10. 33	·1404					
10. 41	15. 30	10. 57	·1426					
11. 16	18. 0	11. 12	·1421					
11. 37	20. 10	11. 37	·1416					
12. 15	21. 30	12. 49	·1421					
13. 37	20. 45	13. 53	·1412					
13. 47	20. 0	14. 20	·1415					
14. 10	21. 40	14. 56	·1412					
14. 35	20. 40	16. 26	·1419					
15. 3	21. 55	16. 49	·1416					
15. 44	22. 0	19. 19	·1419					
16. 27	20. 0	20. 18	·1412					
16. 58	22. 0	20. 37	·1403					
18. 29	22. 5	21. 35	·1409					
19. 34	21. 20	22. 49	·1408					
19. 58	20. 15	23. 57	·1417					
20. 22	21. 0	23. 59	·1412					
20. 40	22. 50							
20. 47	22. 0							
21. 19	23. 10							
21. 25	25. 0							
21. 50	23. 35							
22. 6	25. 0							
22. 36	25. 15							
22. 50	25. 0							
23. 13	27. 15							
23. 59	29. 55							
Mar. 16		Mar. 16		Mar. 16		Mar. 16		
0. 0	20. 29. 55	0. 0	·1412	0. 0	·02842	0. 0	53·8	55·0
0. 6	31. 0	0. 26	·1408	4. 39	·02940	1. 0	55·0	55·3
0. 29	31. 5	1. 12	·1412	6. 58	·02956	2. 0	55·2	56·0
0. 37	32. 50	1. 35	·1410	7. 10	·02943	3. 0	55·4	56·1
1. 21	32. 0	2. 4	·1410	7. 31	·02960	9. 0	55·2	55·8
1. 30	30. 45	2. 39	·1418	15. 38	·02896	21. 50	52·5	53·0
2. 5	29. 0	3. 19	·1415	18. 11	·02850			
2. 35	29. 45	3. 46	·1419	23. 27	·02806			
6. 18	23. 30	4. 34	·1417	23. 59	·02830			
6. 26	24. 30	5. 24	·1423					
6. 55	24. 45	5. 40	·1420					
7. 16	17. 0	6. 55	·1421					
7. 48	21. 0	7. 7	·1411					
8. 10	20. 0	7. 29	·1425					
8. 55	21. 20	7. 40	·1420					
9. 35	20. 0	8. 4	·1417					
9. 49	20. 0	8. 16	·1419					
10. 0	21. 0	8. 27	·1415					
10. 15	20. 50	8. 40	·1418					
10. 19	22. 0	8. 58	·1416					
11. 24	21. 0	9. 9	·1420					
11. 56	21. 55	9. 46	·1420					
12. 10	21. 25	9. 55	·1423					
12. 44	23. 10	10. 13	·1416					
13. 13	22. 0	10. 40	·1416					
13. 47	23. 20	10. 49	·1420					
14. 46	23. 0	11. 0	·1416					
15. 9	24. 0	11. 24	·1415					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Readings of Thermometers. Of V.F. Magnet.
Mar. 16		Mar. 16						
h m	° ′ ″	h m		h m		h m	°	°
15. 17	20. 25. 10	11. 56	·1419					
15. 40	23. 45	12. 5	·1413					
16. 4	23. 30	12. 19	·1418					
16. 9	23. 55	13. 33	·1413					
16. 16	22. 50	14. 0	·1416					
16. 25	24. 0	15. 13	·1410					
17. 0	24. 35	15. 20	·1413					
17. 26	24. 20	15. 29	·1412					
18. 18	20. 40	16. 4	·1416					
18. 35	21. 35	16. 44	·1408					
18. 39	21. 0	17. 7	·1412					
18. 59	21. 10	17. 46	·1424					
19. 17	20. 0	18. 39	·1417					
20. 35	19. 25	18. 47	·1419					
21. 5	20. 55	20. 29	·1412					
21. 13	19. 30	20. 37	·1415					
21. 30	23. 0	20. 40	·1412					
21. 48	22. 15	20. 50	·1414					
22. 0	23. 35	21. 7	·1408					
22. 59	25. 0	21. 22	·1414					
23. 19	26. 50	21. 27	·1416					
23. 42	26. 40	21. 45	·1408					
23. 59	29. 0	21. 57	·1413					
		22. 6	·1410					
		22. 40	·1407					
		23. 9	·1410					
		23. 17	·1409					
		23. 59	·1417					
Mar. 17		Mar. 17		Mar. 17		Mar. 17		
0. 0	20. 29. 0	0. 0	·1417	0. 0	·02830	1. 0	53·6	54·0
0. 27	27. 45	0. 17	·1403	3. 35	·02870	8. 30	52·0	52·4
0. 46	30. 0	1. 9	·1408	8. 58	·02815	21. 0	50·3	50·4
1. 5	30. 45	1. 29	·1404	16. 11	·02695	22. 0	50·2	50·3
1. 27	29. 35	1. 40	·1411	23. 10	·02620	23. 0	50·3	50·7
1. 37	31. 25	1. 54	·1408	23. 59	·02635			
1. 55	30. 10	2. 22	·1413					
2. 57	31. 0	2. 35	·1417					
	***	2. 50	·1415					
3. 54	29. 10	2. 58	·1418					
4. 19	28. 45	3. 8	·1416					
4. 49	25. 55	3. 34	·1418					
5. 59	25. 10	3. 43	·1416					
8. 19	23. 0	3. 50	·1417					
8. 36	21. 45	4. 17	·1413					
9. 3	23. 0	4. 25	·1415					
9. 39	22. 0	4. 30	·1411					
10. 40	23. 50	4. 49	·1412					
11. 15	22. 55	5. 33	·1418					
13. 56	22. 0	5. 47	·1416					
15. 14	26. 0	6. 13	·1420					
15. 39	25. 20	7. 3	·1424					
16. 15	22. 20	7. 27	·1421					
17. 5	24. 0	7. 59	·1424					
18. 6	23. 5	8. 35	·1417					
19. 16	20. 50	9. 1	·1418					
20. 35	20. 35	9. 17	·1423					
22. 3	23. 20	9. 44	·1419					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
Mar.24		Mar.24		Mar.24				
h m	° ′ ″	h m		h m		h m	°	°
2. 15	20. 28. 45	5. 27	·1420	23. 59	·02990			
3. 19	28. 0	5. 43	·1409					
3. 56	28. 5	6. 24	·1419					
5. 24	26. 0	6. 39	·1417					
5. 49	22. 30	6. 58	·1424					
6. 9	21. 0	7. 9	·1419					
6. 31	23. 0	7. 36	·1418					
7. 53	23. 30	8. 12	·1422					
9. 39	23. 0	8. 35	·1416					
10. 7	21. 30	8. 57	·1420					
10. 17	22. 0	10. 28	·1415					
10. 29	20. 0	10. 49	·1435					
10. 48	18. 50	11. 15	·1424					
11. 34	21. 15	12. 22	·1415					
12. 18	21. 5	15. 48	·1416					
13. 19	22. 50	18. 20	·1424					
14. 29	22. 30	19. 26	·1422					
14. 53	21. 50	20. 13	·1414					
15. 55	21. 55	20. 29	·1417					
16. 9	22. 30	21. 26	·1415					
17. 8	20. 55	22. 0	·1410					
18. 4	21. 50	23. 59	·1418					
19. 20	20. 0							
20. 16	20. 30							
21. 0	21. 20							
21. 46	21. 0							
23. 44	26. 0							
23. 59	27. 0							
Mar.25		Mar.25		Mar.25		Mar.25		
0. 0	20. 27. 0	0. 0	·1418	0. 0	·02990	0. 0	56·7	57·0
1. 38	28. 50	1. 12	·1423	2. 18	·03000	1. 0	56·7	56·7
3. 48	26. 55	2. 37	·1424	5. 52	·03030	2. 0	56·6	56·7
5. 34	25. 0	2. 59	·1419	9. 0	·03050	3. 0	56·6	57·0
6. 0	19. 0	3. 25	·1423	14. 0	·03012	9. 0	56·8	57·3
6. 25	19. 10	3. 48	·1418	22. 10	·02923	21. 0	55·9	55·9
6. 55	15. 10	4. 46	·1424	23. 29	·02938	22. 0	56·0	55·8
7. 26	20. 0	5. 18	·1421	23. 59	·02943	23. 0	56·6	56·7
8. 11	20. 0	5. 37	·1425					
8. 22	21. 0	5. 59	·1418					
8. 40	20. 55	6. 25	·1428					
8. 54	22. 50	6. 29	·1422					
9. 30	24. 0	6. 48	·1419					
13. 23	22. 50	7. 8	·1428					
13. 36	24. 50	7. 30	·1423					
14. 16	22. 20	8. 6	·1419					
14. 36	24. 0	8. 23	·1425					
15. 38	20. 55	8. 42	·1420					
16. 30	20. 10	10. 9	·1427					
16. 59	20. 55	12. 5	·1427					
17. 39	22. 0	13. 8	·1423					
18. 10	21. 30	15. 20	·1429					
18. 39	22. 55	16. 27	·1427					
19. 18	21. 15	16. 40	·1429					
20. 4	21. 0	16. 59	·1425					
20. 24	24. 0	17. 35	·1428					
21. 37	27. 10	17. 50	·1424					
22. 7	24. 10	18. 52	·1427					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
Mar.25		Mar.25						
h m	° ′ ″	h m		h m		h m	°	°
22. 27	20. 27. 55	19. 21	·1420					
23. 6	25. 20	19. 39	·1412					
	***	20. 7	·1405					
23. 35	25. 40		***					
23. 59	27. 0	21. 39	·1406					
		21. 56	·1401					
		22. 16	·1409					
		22. 29	·1405					
			***					
		23. 18	·1409					
		23. 26	·1402					
		23. 59	·1411					
Mar.26		Mar.26		Mar.26		Mar.26		
0. 0	20. 27. 0	0. 0	·1411	0. 0	·02943	0. 0	57·0	57·7
0. 27	30. 10	0. 24	·1413	5. 33	·03061	1. 0	57·2	57·8
1. 5	31. 5	1. 16	·1404	11. 55	·03009	2. 0	57·1	57·4
1. 29	33. 30	1. 29	·1407	12. 32	·02982	3. 0	57·4	57·6
1. 47	31. 0	1. 49	·1393	13. 45	·02990	6. 30	57·4	58·3
2. 2	33. 0	2. 7	·1401	17. 47	·03030	9. 0	57·1	57·7
	***	2. 25	·1393	22. 17	·03009	13. 0	56·6	57·2
4. 37	28. 0	2. 39	·1399	23. 39	·02980	21. 0	57·1	58·0
5. 4	28. 35	2. 48	·1394	23. 59	·02980	22. 0	56·9	56·9
5. 35	26. 0		***			23. 0	56·8	56·5
6. 8	25. 0	3. 52	·1406					
7. 14	24. 5	4. 0	·1402					
8. 48	23. 0	4. 36	·1414					
9. 35	23. 5	4. 59	·1411					
9. 54	21. 0	5. 6	·1405					
10. 27	20. 45	5. 40	·1416					
10. 45	19. 10	5. 52	·1413					
11. 12	20. 30	6. 10	·1418					
11. 28	15. 55	6. 25	·1416					
12. 0	22. 30	6. 58	·1420					
12. 45	21. 0	9. 33	·1418					
13. 15	22. 25	9. 55	·1427					
13. 27	21. 15	10. 8	·1421					
14. 58	22. 5	10. 25	·1424					
15. 14	21. 10	11. 4	·1417					
16. 17	21. 35	11. 19	·1429					
16. 27	22. 50	11. 57	·1435					
16. 45	22. 5	12. 53	·1414					
17. 24	23. 15	13. 8	·1418					
17. 48	25. 10	13. 45	·1409					
18. 19	24. 0	14. 9	·1414					
19. 29	22. 5		***					
20. 5	21. 0	17. 3	·1418					
20. 45	20. 15	18. 0	·1425					
21. 29	21. 5	18. 23	·1422					
21. 37	22. 0	19. 0	·1425					
23. 8	25. 0	22. 6	·1405					
23. 29	26. 30	22. 16	·1410					
23. 59	27. 0	22. 58	·1403					
		23. 28	·1408					
			(†)					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Mar.27		Mar.27		Mar.27		Mar.27		
h m	° ′ ″	h m		h m		h m	°	°
0. 0	20. 27. 0		(†)	0. 0	·02980	0. 0	58 ·0	58 ·7
1. 15	28. 30	0. 16	·1409	3. 45	·03090	1. 0	58 ·8	59 ·3
1. 49	28. 10	1. 16	·1410	9. 27	·03035	2. 0	58 ·9	59 ·6
2. 21	30. 0	1. 38	·1405	11. 49	·03053	3. 0	58 ·9	59 ·8
4. 15	28. 0	2. 15	·1413	17. 26	·03050	9. 0	57 ·0	57 ·3
5. 19	24. 10	3. 4	·1415	22. 0	·03010	21. 0	57 ·3	57 ·7
	***	3. 10	·1406	23. 49	·02961	22. 0	56 ·6	36 ·8
5. 59	24. 5	3. 44	·1416		(†)	23. 0	56 ·5	56 ·7
6. 19	25. 10	4. 55	·1413					
6. 46	24. 5	6. 8	·1427					
7. 10	24. 45	6. 35	·1423					
10. 26	22. 55	7. 2	·1428					
10. 54	23. 5	8. 44	·1424					
11. 41	23. 15	10. 34	·1420					
12. 4	25. 15	10. 46	·1427					
12. 34	23. 0	11. 37	·1423					
12. 48	26. 0	11. 50	·1424					
13. 15	22. 0	12. 5	·1430					
13. 34	22. 55	12. 25	·1424					
13. 43	25. 0	12. 47	·1428					
14. 49	22. 0	13. 55	·1419					
15. 24	23. 0	14. 44	·1422					
17. 19	21. 10	15. 25	·1416					
18. 18	22. 30	17. 25	·1422					
20. 7	20. 20	21. 20	·1413					
21. 20	21. 0	21. 45	·1410					
	***	22. 40	·1399					
23. 23	26. 0	23. 5	·1404					
23. 27	28. 35	23. 24	·1403					
23. 34	25. 50	23. 30	·1395					
23. 59	28. 0	23. 59	·1406					
Mar.28		Mar.28		Mar.28		Mar.28		
0. 0	20. 28. 0	0. 0	·1406		(†)	c. 0	57 ·1	57 ·3
0. 10	29. 20	0. 25	·1408	1. 0	·02982*	1. 0	58 ·0	58 ·2
0. 52	30. 5	0. 49	·1402	2. 3	·03018	2. 0	58 ·0	58 ·2
1. 30	30. 10	0. 58	·1409	3. 59	·03020	3. 0	57 ·0	57 ·6
1. 40	29. 40	1. 30	·1412	7. 7	·03030	9. 0	57 ·0	57 ·4
2. 9	30. 30	1. 45	·1407	8. 33	·03055	21. 0	58 ·0	58 ·3
2. 40	29. 0	2. 13	·1418	8. 52	·03050	22. 0	56 ·5	57 ·0
2. 54	30. 15	2. 39	·1410	11. 23	·03070	23. 0	56 ·3	56 ·7
5. 37	25. 0	2. 57	·1425	18. 30	·03075			
6. 7	26. 0	3. 24	·1422	21. 23	·03055			
6. 39	25. 40	3. 35	·1426	23. 30	·03005			
6. 58	24. 0	3. 56	·1423		(†)			
7. 17	23. 5	4. 17	·1425					
7. 46	15. 20	5. 10	·1423					
7. 55	15. 5	5. 23	·1428					
8. 16	14. 0	5. 47	·1422					
8. 43	19. 30	6. 27	·1425					
9. 10	17. 25	7. 10	·1422					
9. 47	21. 55	7. 33	·1409					
10. 8	21. 0	7. 49	·1413					
10. 34	22. 55	8. 0	·1409					
11. 0	21. 30	8. 17	·1415					
11. 43	26. 0	8. 24	·1402					
11. 55	25. 0	8. 37	·1412					
12. 24	26. 35	8. 50	·1413					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Mar.28		Mar.28						
h m	° ′ ″	h m		h m		h m	°	°
12. 47	20. 24. 10	9. 6	·1409					
13. 10	25. 30	9. 40	·1414					
14. 4	23. 15	9. 58	·1410					
14. 15	22. 0	10. 29	·1420					
14. 17	22. 55	11. 2	·1416					
14. 41	22. 55	11. 49	·1418					
14. 50	21. 40	12. 9	·1413					
15. 9	21. 35	12. 35	·1417					
15. 15	20. 50	13. 0	·1410					
15. 24	21. 50	14. 3	·1416					
16. 10	22. 15	14. 18	·1406					
16. 48	20. 55	14. 26	·1411					
18. 17	22. 10	15. 18	·1414					
18. 30	21. 30	15. 54	·1410					
18. 47	22. 50	17. 16	·1420					
19. 46	20. 0	18. 16	·1414					
19. 54	21. 0	19. 7	·1416					
20. 6	20. 0	19. 42	·1408					
20. 35	22. 10	19. 50	·1413					
20. 43	21. 0	20. 39	·1408					
20. 52	22. 0	21. 25	·1392					
21. 23	21. 50	21. 47	·1396					
21. 39	22. 5	23. 28	·1404					
21. 48	24. 0	23. 36	·1399					
22. 56	25. 15	23. 59	·1400					
23. 17	28. 15							
23. 59	28. 30							
Mar.29		Mar.29		Mar.29		Mar.29		
0. 0	20. 28. 30	0. 0	·1400		(†)	0. 0	57 ·0	57 ·5
0. 40	29. 50	1. 16	·1407	1. 0	·03000	1. 0	57 ·0	58 ·0
1. 22	30. 10	1. 45	·1405	5. 30	·03050	2. 0	57 ·1	58 ·0
2. 34	29. 10	2. 12	·1409	9. 0	·03048	3. 0	57 ·0	57 ·6
4. 9	25. 10	3. 4	·1406	11. 39	·03070	9. 0	56 ·5	57 ·5
5. 37	23. 55	4. 46	·1418	20. 21	·03050	21. 0	57 ·9	58 ·0
6. 9	24. 10	5. 13	·1413	22. 57	·02972	22. 0	56 ·0	56 ·5
7. 4	23. 0	5. 37	·1416	23. 55	·02955	23. 0	55 ·7	55 ·9
7. 54	23. 0	5. 55	·1414	23. 59	·02985			
8. 40	23. 55	6. 11	·1417					
9. 33	23. 55	6. 21	·1413					
9. 46	22. 55	7. 10	·1418					
11. 44	24. 0	8. 49	·1418					
12. 6	23. 0	11. 26	·1413					
12. 34	24. 0	11. 40	·1417					
15. 6	22. 0	14. 34	·1408					
16. 37	22. 45	19. 39	·1416					
18. 0	22. 0	20. 58	·1409					
18. 9	21. 0	21. 47	·1393					
18. 22	21. 30	22. 23	·1399					
20. 26	19. 15	23. 5	·1394					
21. 15	20. 10	23. 51	·1403					
22. 10	25. 0		(†)					
22. 21	26. 5							
23. 9	27. 0							
23. 49	30. 10							
	(†)							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Apr. 5 h m 23. 47	° ′ ″ 20. 28. 50 (†)	Apr. 5 h m 19. 28	·1411	h m		h m	°	°
		20. 9	·1400					
		20. 17	·1404					
		20. 29	·1401					
		21. 7	·1402					
		22. 33	·1396					
		23. 5	·1406					
		23. 47	·1412					
			(†)					
Apr. 6		Apr. 6		Apr. 6		Apr. 6		
	(†)		(†)	0. 0	·03020	0. 0	58 ·5	58 ·7
0. 10	20. 30. 0	0. 6	·1417	3. 6	·03115	1. 0	59 ·0	59 ·1
0. 40	30. 0	1. 40	·1426	10. 12	·03142	3. 0	59 ·3	59 ·3
1. 44	32. 0	2. 45	·1420	15. 18	·03125	9. 0	59 ·8	60 ·5
2. 36	31. 50	3. 16	·1409	20. 6	·03090	21. 30	58 ·0	58 ·3
3. 0	27. 15	3. 24	·1413	22. 37	·03040			
3. 32	25. 0	3. 30	·1410	23. 59	·03051			
4. 21	26. 40	3. 40	·1417					
5. 46	24. 30	4. 14	·1423					
6. 44	23. 45	4. 35	·1417					
7. 9	24. 20	5. 18	·1422					
10. 35	23. 55	5. 42	·1419					
10. 47	22. 50	6. 5	·1423					
11. 15	23. 20	6. 27	·1419					
12. 57	22. 50	10. 25	·1416					
16. 5	22. 5	10. 43	·1422					
18. 17	23. 15	10. 59	·1415					
18. 43	21. 10	11. 30	·1417					
18. 50	23. 25	12. 3	·1414					
19. 2	23. 0	12. 17	·1419					
19. 7	21. 35	12. 35	·1416					
19. 26	22. 30	17. 11	·1416					
19. 28	21. 10	17. 35	·1411					
19. 45	20. 15	17. 53	·1417					
20. 9	21. 0	18. 6	·1413					
20. 31	20. 10	19. 49	·1414					
21. 50	22. 40	21. 47	·1400					
21. 57	25. 50	22. 14	·1406					
22. 6	24. 20	22. 41	·1398					
22. 46	28. 50	22. 50	·1390					
23. 59	31. 25	23. 23	·1390					
		23. 47	·1402					
		23. 56	·1400					
		23. 59	·1402					
Apr. 7		Apr. 7		Apr. 7		Apr. 7		
0. 0	20. 31. 25	0. 0	·1402	0. 0	·03051	0. 0	58 ·2	58 ·5
0. 39	33. 0	0. 36	·1411	2. 53	·03097	9. 0	58 ·1	58 ·6
0. 50	32. 0	1. 15	·1403	3. 57	·03130	21. 0	57 ·3	57 ·3
1. 0	33. 20	1. 25	·1411	4. 33	·03162	22. 0	55 ·8	56 ·5
1. 19	33. 0	1. 47	·1417	4. 57	·03140	23. 0	55 ·5	56 ·3
1. 33	31. 5	2. 18	·1410	5. 27	·03170			
2. 25	33. 0	2. 26	·1417	6. 19	·03129			
2. 36	32. 0	2. 37	·1411	7. 35	·03118			
2. 42	33. 0	2. 45	·1417	7. 45	·03130			
3. 5	26. 10	2. 55	·1402	8. 15	·03080			
3. 13	27. 20	3. 13	·1422	8. 56	·03096			

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Apr. 7 h m s 3. 26	° ′ ″ 20. 27. 0	Apr. 7 h m s 3. 37	·1428	Apr. 7 h m 10. 26	·03080	h m	°	°
3. 55	30. 0	3. 47	·1425	11. 4	·03030			
4. 3	28. 0	4. 9	·1408	14. 27	·03073			
4. 9	29. 0	4. 44	·1434	19. 5	·03048			
4. 30	20. 5	5. 1	·1390	22. 22	·02992			
4. 58	27. 15	5. 59	·1425	23. 40	·02956			
5. 30	18. 40	6. 23	·1411	23. 59	·02954			
5. 43	19. 20	7. 0	·1408					
6. 13	24. 50	7. 16	·1409					
6. 45	22. 10	7. 26	·1416					
7. 19	21. 10	7. 36	·1416					
7. 47	11. 10	7. 56	·1454					
8. 11	22. 10	8. 27	·1398					
8. 36	14. 30	8. 57	·1416					
9. 11	20. 0	9. 25	·1410					
9. 44	21. 55	9. 56	·1423					
10. 5	21. 20	10. 19	·1416					
10. 46	26. 0	10. 45	·1431					
11. 14	21. 50	11. 19	·1418					
11. 27	22. 0	11. 29	·1419					
11. 50	17. 30	11. 39	·1416					
13. 5	22. 25	12. 4	·1424					
13. 29	21. 30	12. 15	·1419					
14. 5	22. 30	12. 24	·1421					
14. 29	24. 45	13. 4	·1410					
15. 30	22. 5	14. 35	·1408					
17. 14	20. 5	17. 57	·1416					
18. 15	22. 30	18. 9	·1414					
18. 34	21. 25	18. 30	·1406					
19. 26	25. 30	19. 30	·1406					
20. 29	21. 40	19. 57	·1410					
20. 55	21. 30	21. 16	·1398					
21. 50	23. 35	22. 6	·1403					
22. 0	24. 40	23. 26	·1411					
22. 20	24. 30	23. 59	·1410					
23. 40	28. 10							
23. 59	29. 25							
Apr. 8		Apr. 8		Apr. 8		Apr. 8		
0. 0	20. 29. 25	0. 0	·1410	0. 0	·02954	0. 0	57 ·3	57 ·8
0. 39	31. 40	0. 26	·1413	3. 5	·03081	1. 0	58 ·0	58 ·6
0. 53	30. 10	0. 56	·1407	5. 32	·03140	3. 0	59 ·1	59 ·3
1. 38	30. 10	1. 13	·1416	5. 43	·03138	9. 0	59 ·9	60 ·5
2. 21	28. 0	1. 30	·1414	6. 0	·03158	21. 0	58 ·2	58 ·7
2. 34	28. 15	3. 45	·1422	6. 31	·03150	22. 0	57 ·1	57 ·7
3. 41	27. 30	4. 20	·1415	9. 0	·03163	23. 0	57 ·5	57 ·8
5. 33	24. 40	4. 37	·1417	11. 9	·03138			
5. 49	16. 0	4. 46	·1422	11. 27	·03144			
6. 20	22. 45	5. 5	·1416	11. 54	·03120			
6. 42	20. 0	5. 29	·1420	12. 33	·03104			
7. 13	21. 55	5. 40	·1410	12. 50	·03114			
7. 42	22. 0	5. 59	·1430	13. 34	·03100			
7. 56	20. 35	6. 30	·1409	14. 23	·03117			
8. 15	20. 0	6. 58	·1413	17. 52	·03089			
8. 23	20. 55	8. 8	·1409	19. 9	·03100			
8. 55	20. 0	8. 28	·1413	23. 33	·03032			
9. 58	22. 0	9. 10	·1402	23. 59	·03030			
10. 40	20. 30	9. 39	·1411					

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Apr. 8		Apr. 8						
h m	° ′ ″	h m		h m		h m	°	°
11. 18	20. 16. 45	9. 48	·1408					
11. 39	20. 0	10. 39	·1417					
12. 5	17. 30	11. 4	·1415					
12. 31	23. 25	11. 15	·1407					
12. 45	21. 5	11. 38	·1417					
12. 53	21. 0	12. 20	·1410					
13. 7	23. 10	12. 33	·1404					
13. 50	18. 5	13. 17	·1416					
14. 28	21. 30	13. 54	·1404					
15. 20	18. 0	14. 20	·1402					
16. 35	18. 50	14. 50	·1410					
16. 58	20. 30	15. 46	·1407					
18. 10	22. 40	17. 40	·1420					
18. 20	21. 20	18. 19	·1408					
18. 42	22. 10	18. 27	·1411					
19. 6	21. 0	19. 10	·1406					
19. 17	19. 20	19. 23	·1411					
19. 38	20. 5	19. 46	·1412					
20. 14	21. 0	20. 37	·1399					
21. 35	24. 30	22. 39	·1388					
23. 50	31. 45		***					
23. 59	32. 30	23. 59	·1396					
Apr. 9		Apr. 9		Apr. 9		Apr. 9		
0. 0	20. 32. 30	0. 0	·1396	0. 0	·03030	0. 0	58 ·9	58 ·9
1. 27	34. 55	0. 59	·1408	3. 20	·03100	1. 0	58 ·4	58 ·5
1. 40	36. 0	1. 19	·1404	4. 19	·03160	2. 0	58 ·0	58 ·1
2. 27	34. 0	1. 35	·1409	6. 52	·03178	3. 0	57 ·9	58 ·3
2. 51	35. 5	2. 0	·1404	7. 10	·03160	9. 0	58 ·2	58 ·8
3. 20	31. 0	2. 30	·1414	9. 39	·03112	21. 0	57 ·7	58 ·0
3. 45	33. 0	2. 52	·1413	14. 30	·03110	22. 0	56 ·5	57 ·0
4. 10	31. 15	3. 18	·1392	19. 0	·03080	23. 0	56 ·4	56 ·9
4. 27	33. 0	3. 48	·1419	20. 50	·03050			
4. 36	30. 0	4. 20	·1411	23. 23	·02979			
4. 58	30. 0	4. 25	·1414	23. 59	·02990			
5. 8	27. 50	4. 33	·1403					
5. 13	28. 0	4. 55	·1415					
5. 5	24. 55	5. 7	·1406					
6. 15	27. 0	5. 11	·1410					
6. 25	25. 40	5. 22	·1398					
6. 32	26. 20	5. 27	·1405					
6. 53	19. 40	5. 32	·1402					
7. 4	25. 30	5. 55	·1415					
7. 13	24. 30	5. 59	·1411					
7. 39	26. 20	6. 7	·1416					
7. 59	26. 0	6. 21	·1406					
8. 25	24. 15	6. 28	·1410					
8. 55	25. 30	6. 40	·1399					
11. 15	23. 35	6. 57	·1416					
13. 18	23. 0	7. 8	·1407					
13. 43	21. 40	7. 56	·1412					
14. 8	22. 45	8. 13	·1410					
17. 40	21. 55	8. 39	·1415					
18. 9	20. 0	9. 16	·1415					
18. 30	20. 0	13. 19	·1405					
18. 54	21. 25	13. 35	·1408					
20. 20	19. 45	13. 51	·1403					
20. 31	20. 25	19. 48	·1408					

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Apr. 9		Apr. 9						
h m	° ′ ″	h m		h m		h m	°	°
21. 35	20. 21. 55	21. 25	·1402					
21. 49	23. 55	22. 13	·1390					
22. 9	22. 20	22. 30	·1397					
22. 15	24. 0	23. 25	·1392					
23. 27	27. 40	23. 59	·1403					
23. 54	32. 0							
23. 59	28. 40							
Apr. 10		Apr. 10		Apr. 10		Apr. 10		
0. 0	20. 28. 40	0. 0	·1403	0. 0	·02990	0. 0	57 ·9	58 ·2
1. 53	28. 50		***	3. 6	·03024	1. 0	57 ·6	57 ·5
2. 46	27. 30	3. 49	·1418	5. 50	·03060	2. 0	57 ·7	57 ·5
2. 53	28. 0	5. 5	·1419	11. 5	·03083	3. 0	57 ·4	57 ·7
4. 30	24. 15	8. 17	·1420	13. 16	·03085	9. 0	58 ·3	58 ·9
9. 19	23. 45	8. 33	·1427	15. 28	·03077	21. 0	57 ·8	57 ·9
9. 52	18. 35	9. 27	·1417	18. 3	·03073	22. 0	56 ·0	56 ·1
10. 16	18. 35	9. 39	·1421	21. 9	·03040	23. 0	56 ·1	56 ·3
10. 39	20. 30	10. 34	·1418	22. 47	·02970			
11. 1	19. 0	10. 50	·1412	23. 59	·02985			
	***	11. 9	·1415					
12. 25	22. 30	12. 2	·1415					
13. 0	23. 0	12. 40	·1407					
13. 25	24. 20	13. 56	·1409					
13. 55	23. 55	14. 29	·1406					
14. 15	24. 0	15. 49	·1411					
14. 30	25. 30	17. 1	·1407					
14. 44	25. 0	17. 20	·1411					
15. 19	21. 35	18. 9	·1412					
16. 22	19. 55	18. 55	·1403					
17. 37	21. 15	20. 7	·1409					
18. 21	20. 35		***					
19. 34	22. 55	22. 20	·1399					
20. 16	20. 0	23. 5	·1396					
21. 19	20. 10	23. 22	·1390					
22. 25	22. 0	23. 38	·1392					
22. 32	23. 35	23. 59	·1397					
23. 59	27. 10							
Apr. 11		Apr. 11		Apr. 11		Apr. 11		
0. 0	20. 27. 10	0. 0	·1397	0. 0	·02985	0. 0	57 ·8	58 ·0
0. 30	28. 40	0. 39	·1401	3. 50	·03073	1. 0	58 ·5	58 ·5
2. 33	29. 5	1. 51	·1405	5. 35	·03115	2. 0	58 ·0	58 ·1
3. 6	27. 45	2. 51	·1413	10. 21	·03080	3. 0	57 ·9	58 ·1
3. 40	28. 0	3. 5	·1408	13. 19	·03100	9. 0	58 ·1	59 ·0
4. 11	25. 35	3. 40	·1414	14. 6	·03089	21. 0	58 ·7	59 ·0
4. 20	25. 40	3. 59	·1407	17. 0	·03095	22. 0	57 ·6	58 ·1
5. 4	21. 0	4. 22	·1415	18. 49	·03114	23. 0	57 ·3	57 ·7
5. 25	21. 20	4. 30	·1411	21. 10	·03080			
6. 17	24. 0	4. 39	·1415	23. 29	·03020			
8. 35	24. 40	5. 0	·1407	23. 59	·03029			
9. 29	11. 30	6. 15	·1423					
9. 40	13. 30	7. 45	·1422					
9. 50	13. 5	7. 59	·1418					
10. 6	18. 10	8. 34	·1425					
10. 21	17. 0	9. 10	·1407					
10. 42	21. 15	9. 41	·1427					
10. 58	20. 50	10. 18	·1398					
12. 5	23. 0	10. 36	·1407					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Apr. 19 h m	° ′ ″	Apr. 19 h m		h m		h m	°	°
18. 34	20. 18. 20	10. 1	·1427					
18. 47	18. 40	11. 6	·1430					
19. 23	17. 20	12. 9	·1426					
19. 30	15. 40	14. 55	·1428					
20. 0	17. 20	17. 34	·1430					
20. 27	17. 40	19. 42	·1425					
20. 39	19. 0	20. 49	·1412 ***					
23. 24	26. 0							
23. 59	28. 30	23. 59	·1416					
Apr. 20		Apr. 20		Apr. 20		Apr. 20		
0. 0	20. 28. 30	0. 0	·1416	0. 0	·03020	0. 0	60·0	59·8
1. 39	33. 25	1. 20	·1432	4. 10	·03120	1. 6	60·0	59·8
2. 6	33. 0	1. 39	·1433	7. 48	·03100	2. 0	59·9	59·8
2. 19	31. 50	1. 50	·1437	8. 8	·03109	3. 0	59·8	59·8
2. 36	32. 40	2. 10	·1436	10. 55	·03090	9. 0	59·6	59·6
3. 14	28. 30	2. 56	·1412	11. 15	·03073	22. 0	56·1	55·6
3. 50	25. 25	3. 33	·1420	17. 0	·03010			
4. 24	24. 30	4. 9	·1426	18. 59	·02975			
4. 47	23. 50	4. 24	·1435	23. 30	·02849			
5. 55	22. 30	4. 40	·1429	23. 59	·02850			
7. 23	22. 45	5. 0	·1432					
7. 54	18. 30	5. 23	·1430					
8. 15	20. 0	5. 45	·1426					
8. 34	18. 0	6. 15	·1431					
9. 2	18. 40	6. 40	·1428					
9. 23	20. 35	7. 27	·1434					
9. 35	20. 0	7. 46	·1426					
9. 49	21. 30	8. 3	·1430					
9. 57	21. 20	8. 19	·1427					
10. 6	22. 20	8. 36	·1435					
10. 37	21. 20	8. 58	·1427					
10. 56	23. 30	9. 28	·1425					
11. 37	19. 0	9. 56	·1428					
12. 36	21. 0	10. 17	·1425					
14. 0	21. 20	10. 56	·1434					
14. 46	20. 0	11. 12	·1428					
14. 54	20. 50	11. 50	·1428					
15. 2	19. 50	12. 37	·1423					
15. 37	17. 40	14. 36	·1422					
15. 45	18. 30	14. 55	·1425					
15. 55	17. 55	17. 45	·1419					
16. 50	22. 0	18. 9	·1423					
18. 40	18. 15	18. 45	·1421					
19. 56	19. 20	19. 44	·1418					
21. 25	22. 35	20. 30	·1408					
21. 32	22. 5	21. 24	·1426					
23. 35	28. 0	23. 59	·1420					
23. 59	29. 30							
Apr. 21		Apr. 21		Apr. 21		Apr. 21		
0. 0	20. 29. 30	0. 0	·1420	0. 0	·02850	1. 0	57·1	56·6
1. 26	30. 0	0. 48	·1430	6. 15	·02979	3. 0	57·0	57·0
4. 37	24. 30	2. 45	·1435	8. 56	·02990	5. 0	58·0	58·0
6. 57	23. 15	3. 49	·1429	12. 35	·03020	8. 0	58·1	58·0
7. 14	22. 15	3. 57	·1432	16. 0	·03013	21. 0	58·8	58·8
7. 52	22. 20	4. 47	·1429	18. 20	·03029	22. 0	58·4	58·6
8. 20	23. 30	6. 37	·1433	22. 2	·02999	23. 0	58·9	58·9

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Apr. 21 h m	° ′ ″	Apr. 21 h m		Apr. 21 h m		h m	°	°
10. 27	20. 22. 35	7. 17	·1422	23. 59	·02965			
10. 38	22. 0	8. 5	·1427					
10. 55	22. 40	11. 9	·1426					
12. 10	22. 15	13. 44	·1421					
14. 23	23. 0	14. 26	·1425					
14. 35	22. 10	14. 45	·1420					
14. 53	23. 0	15. 45	·1424					
15. 17	27. 0	15. 55	·1428					
16. 25	21. 10	16. 33	·1422					
18. 16	20. 30	18. 19	·1424					
19. 21	18. 20	19. 49	·1417					
21. 18	20. 0	21. 55	·1405					
23. 20	26. 25	23. 5	·1401 (†)					
23. 59	27. 30							
Apr. 22		Apr. 22		Apr. 22		Apr. 22		
0. 0	20. 27. 30		(†)	0. 0	·02965	0. 0	59·6	59·5
1. 18	28. 50	0. 26	·1405	1. 35	·03000	1. 0	59·9	59·7
4. 3	24. 25	1. 30	·1417	3. 34	·03000	2. 0	58·9	58·3
6. 15	23. 45	1. 50	·1413	7. 57	·03029	3. 0	58·2	58·4
7. 4	23. 45	3. 46	·1422	18. 47	·03044	6. 0	58·4	59·0
7. 27	21. 50	3. 57	·1420	19. 31	·03029	9. 0	58·4	59·0
7. 55	22. 5	5. 7	·1427	23. 18	·03009	21. 8	59·0	59·7
8. 20	20. 5	6. 42	·1426	23. 59	·03020	22. 0	59·4	59·5
8. 49	22. 10	7. 46	·1423			23. 0	59·5	59·5
11. 28	21. 20	8. 19	·1435					
15. 3	20. 20	8. 41	·1427					
15. 15	19. 35	11. 47	·1433					
16. 10	18. 20	11. 59	·1428					
17. 7	19. 0	12. 19	·1432					
18. 27	20. 0	12. 40	·1429					
19. 4	22. 0	13. 28	·1434					
19. 50	19. 40	14. 34	·1432					
20. 5	20. 5	14. 59	·1435					
21. 23	25. 35	15. 15	·1431					
21. 38	25. 0	15. 26	·1434					
22. 42	28. 30	15. 56	·1433					
23. 19	26. 15	16. 57	·1424					
23. 59	26. 30	17. 41	·1426					
		18. 16	·1422					
		18. 59	·1429					
		19. 44	·1414					
		20. 39	·1417					
		20. 57	·1411					
		21. 7	·1414					
		22. 22	·1397					
		22. 57	·1400					
		23. 36	·1415					
		23. 59	·1414					
Apr. 23		Apr. 23		Apr. 23		Apr. 23		
0. 0	20. 26. 30	0. 0	·1414	0. 0	·03020	0. 0	59·9	60·1
1. 17	27. 20	2. 14	·1415	2. 40	·03080	1. 0	60·0	60·4
2. 27	26. 40	2. 29	·1413	3. 0	·03073	2. 0	59·9	60·0
2. 30	28. 50	2. 39	·1423	9. 58	·03099	3. 0	60·2	60·1
2. 56	25. 20	2. 59	·1409	19. 38	·03040	9. 0	60·3	60·8
3. 19	26. 0	3. 10	·1415	23. 20	·02991	21. 0	58·6	59·1
3. 32	25. 20	3. 36	·1415	23. 59	·03000	22. 0	58·6	58·5

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Apr. 23		Apr. 23				Apr. 23		
h m	° ′ ″	h m		h m		h m	°	°
4. 4	20. 27. 20	3. 55	·1420			23. 0	58·7	58·7
4. 24	27. 30	5. 5	·1418					
6. 33	23. 30	5. 56	·1428					
11. 45	21. 45	6. 16	·1424					
15. 51	19. 25	6. 56	·1428					
16. 15	20. 50	8. 6	·1428					
17. 21	20. 30	8. 16	·1424					
18. 15	17. 40	8. 26	·1429					
18. 50	18. 20	8. 35	·1420					
19. 11	16. 0	9. 19	·1424					
19. 31	18. 30	9. 30	·1420					
21. 7	19. 45	13. 16	·1414					
23. 18	23. 15	13. 53	·1420					
23. 59	25. 55	14. 28	·1417					
		14. 39	·1420					
			***					
		15. 54	·1419					
		16. 24	·1415					
		17. 35	·1424					
		19. 5	·1417					
		19. 25	·1423					
			***					
		23. 38	·1404					
		23. 59	·1413					
Apr. 24		Apr. 24		Apr. 24		Apr. 24		
0. 0	20. 25. 55	0. 0	·1413	0. 0	·03000	0. 0	59·5	59·3
0. 15	27. 40	0. 7	·1414	2. 15	·03058	1. 0	60·2	60·1
0. 46	26. 5	1. 6	·1404	5. 55	·03080	2. 0	59·7	59·7
1. 21	27. 0	1. 23	·1410	9. 15	·03089	3. 0	59·8	59·7
2. 27	26. 15	1. 53	·1405	20. 7	·03014	9. 0	59·9	60·0
3. 14	24. 40	2. 22	·1415	23. 28	·02950	21. 0	58·0	58·2
5. 50	24. 30	3. 18	·1415	23. 59	·02942	22. 0	57·1	57·1
6. 12	23. 20	3. 58	·1423			23. 0	56·9	56·9
7. 33	23. 40	4. 14	·1423					
8. 4	20. 10	5. 24	·1427					
8. 28	20. 0	5. 47	·1433					
8. 39	21. 10	7. 39	·1427					
9. 25	18. 35	7. 55	·1423					
10. 5	20. 55	8. 23	·1427					
10. 17	20. 15	8. 31	·1425					
11. 33	20. 50	8. 43	·1429					
12. 46	22. 45	9. 16	·1424					
13. 29	22. 30	10. 17	·1427					
13. 57	21. 20	11. 53	·1422					
14. 17	22. 5	13. 6	·1419					
14. 56	20. 45	13. 19	·1423					
15. 6	21. 45	13. 59	·1417					
15. 14	21. 20	14. 49	·1420					
15. 30	23. 45	15. 29	·1415					
15. 41	22. 30	15. 45	·1420					
15. 55	24. 25	17. 26	·1420					
17. 5	19. 35	18. 13	·1424					
18. 23	18. 40	18. 38	·1419					
19. 21	21. 0	19. 41	·1417					
19. 35	20. 15	20. 29	·1419					
19. 42	20. 45	21. 25	·1408					
21. 5	20. 10	22. 33	·1410					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Apr. 24		Apr. 24						
h m	° ′ ″	h m		h m		h m	°	°
21. 53	20. 21. 35	23. 34	·1404					
23. 47	24. 45	23. 59	·1406					
23. 59	26. 0							
Apr. 25		Apr. 25		Apr. 25		Apr. 25		
0. 0	20. 26. 0	0. 0	·1406	0. 0	·02942	0. 0	57·8	58·0
0. 47	26. 30		***	2. 0	·02980	1. 0	57·5	57·5
2. 31	24. 50	4. 20	·1427	3. 8	·02964	2. 0	57·0	57·0
4. 59	22. 45	4. 41	·1426	8. 46	·02989	3. 0	57·5	57·5
5. 6	23. 30	5. 13	·1429	10. 5	·02973	9. 0	57·1	57·5
6. 50	21. 45	5. 20	·1435	12. 7	·02957	21. 0	56·3	56·6
7. 23	22. 0	6. 15	·1430	18. 43	·02935	22. 0	56·4	56·8
7. 45	21. 10	6. 24	·1435	23. 30	·02876	23. 0	56·4	56·8
8. 5	22. 45	6. 40	·1430	23. 59	·02880			
8. 43	17. 0	6. 56	·1435					
9. 10	20. 20	7. 30	·1430					
9. 31	18. 40	7. 42	·1425					
10. 30	22. 20	8. 9	·1425					
10. 48	21. 10	8. 28	·1431					
11. 11	24. 40	8. 37	·1429					
11. 46	23. 45	9. 11	·1434					
12. 22	20. 40	9. 36	·1423					
12. 56	22. 25	9. 57	·1420					
	***	10. 49	·1422					
13. 28	22. 20	10. 59	·1427					
13. 38	20. 35	11. 37	·1429					
13. 50	22. 15	11. 50	·1435					
14. 5	20. 55	12. 10	·1427					
14. 16	22. 40	12. 38	·1427					
14. 50	19. 10	13. 9	·1422					
15. 5	21. 35	13. 53	·1418					
16. 13	21. 40	14. 7	·1421					
16. 31	22. 45	14. 18	·1416					
17. 19	20. 20	14. 27	·1420					
18. 8	20. 45	15. 55	·1414					
	***	16. 19	·1419					
20. 39	19. 30	19. 7	·1418					
21. 7	21. 5	20. 27	·1412					
23. 3	24. 30	21. 13	·1411					
23. 35	28. 15	22. 39	·1401					
	(†)	23. 59	·1406					
Apr. 26		Apr. 26		Apr. 26		Apr. 26		
	(†)	0. 0	·1406	0. 0	·02880	0. 0	56·9	57·2
0. 6	20. 28. 45	1. 4	·1416	1. 36	·02925	1. 0	57·2	57·6
0. 59	30. 0	1. 24	·1414	5. 37	·02969	2. 0	57·4	57·8
1. 21	28. 40	1. 45	·1424	13. 45	·02968	3. 0	57·4	58·0
1. 35	30. 0	2. 6	·1414	15. 18	·02960	9. 0	57·4	58·3
1. 51	28. 20	3. 29	·1427	17. 44	·02969	21. 0	57·6	58·0
2. 42	26. 5	3. 47	·1431	21. 25	·02930	22. 0	57·6	58·0
3. 45	25. 20	4. 5	·1428	23. 33	·02928	23. 0	57·7	58·2
4. 9	24. 0	4. 28	·1430	23. 59	·02940			
4. 26	24. 0	4. 52	·1428					
5. 0	20. 50	5. 39	·1437					
5. 26	22. 0	6. 2	·1429					
6. 59	22. 40	7. 10	·1427					
7. 25	21. 30	7. 39	·1429					
7. 40	22. 25	8. 5	·1435					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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May 3 h m	° ′ ″	May 3 h m		May 3 h m		May 3 h m	°	°
0. 0	20. 29. 40	0. 0	·1410	0. 0	·02980	0. 0	59·7	59·7
0. 56	28. 40	0. 27	·1413	4. 45	·03058	1. 0	60·0	60·2
1. 40	27. 20	0. 36	·1409	12. 12	·03080	2. 0	60·7	60·7
2. 10	27. 15	1. 3	·1414	14. 32	·03019	3. 0	60·7	61·0
4. 44	23. 0	1. 24	·1407	16. 0	·03036	9. 0	60·2	61·2
6. 44	20. 40	2. 18	·1416	19. 52	·03010	21. 0	59·0	59·7
6. 59	19. 40	2. 47	·1413	22. 4	·02982	22. 0	60·0	60·0
8. 38	22. 0	3. 14	·1418	23. 2	·03000	23. 0	60·6	60·4
10. 8	21. 30	3. 27	·1415	23. 59	·03030			
10. 45	21. 10	4. 10	·1423					
10. 55	22. 10	4. 39	·1415					
11. 46	20. 20	5. 4	·1421					
11. 58	21. 0		***					
12. 6	20. 40	6. 25	·1419					
12. 26	22. 30	6. 45	·1425					
13. 7	20. 0	7. 30	·1419					
14. 20	13. 0	7. 45	·1423					
14. 45	14. 0	9. 48	·1417					
15. 32	19. 30	10. 49	·1423					
16. 17	17. 0	11. 27	·1420					
16. 43	17. 0	11. 34	·1416					
16. 58	16. 5	11. 48	·1420					
18. 1	17. 50	11. 59	·1416					
18. 16	17. 0	12. 11	·1430					
19. 6	17. 0	12. 36	·1429					
19. 22	21. 5	12. 56	·1422					
19. 43	19. 35	13. 37:	·1430					
19. 57	21. 5	14. 54	·1406					
20. 9	21. 0	15. 27	·1404					
20. 50	25. 5	15. 50	·1412					
21. 51	26. 0	16. 24	·1416					
23. 59	31. 0	16. 59	·1410					
		19. 0	·1410					
		19. 36	·1402					
		20. 21	·1385					
		20. 48	·1386					
		21. 47	·1395					
			***					
		23. 6	·1393					
		23. 47	·1398					
		23. 59	·1397					
May 4		May 4		May 4		May 4		
0. 0	20. 31. 0	0. 0	·1397	0. 0	·03030	0. 0	61·0	60·9
0. 45	32. 35	1. 5	·1398	4. 35	·03130	1. 0	62·3	61·1
1. 55	31. 15	1. 36	·1395	11. 15	·03110	2. 0	61·4	61·1
2. 29	30. 0	2. 24	·1399	11. 55	·03089	3. 0	62·0	61·7
2. 48	30. 50	2. 41	·1388	12. 13	·03102	7. 30	60·9	61·5
3. 22	25. 40	3. 8	·1405	12. 50	·03085	9. 0	61·0	61·8
4. 31	25. 20	3. 15	·1401	13. 10	·03097	21. 30	60·0	60·0
4. 55	25. 55	3. 33	·1408	14. 8	·03087			
5. 59	23. 10	3. 50	·1402	14. 57	·03050			
6. 20	23. 50	4. 6	·1408	18. 9	·03073			
6. 36	22. 40	4. 24	·1406	21. 5	·03020			
7. 25	23. 45	5. 10	·1413	22. 50	·03050			
7. 43	22. 15	5. 27	·1419	23. 59	·03072			
9. 10	21. 15	6. 36	·1409					
9. 30	22. 40	7. 5	·1417					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
May 4 h m	° ′ ″	May 4 h m		h m		h m	°	°
10. 2	20. 21. 50	7. 19	·1415					
10. 33	22. 0	7. 29	·1416					
10. 58	20. 30	7. 51	·1414					
11. 22	20. 30	8. 15	·1419					
12. 10	14. 55	9. 0	·1410					
12. 30	16. 15	9. 15	·1415					
13. 40	17. 30	9. 52	·1410					
13. 53	17. 0	10. 27	·1421					
14. 8	17. 50	11. 14	·1412					
14. 50	21. 50	11. 27	·1413					
15. 3	23. 5	12. 12	·1398					
15. 38	17. 10	12. 39	·1412					
16. 7	16. 0	12. 58	·1402					
16. 38	13. 30	13. 38	·1408					
16. 51	14. 50	14. 14	·1400					
17. 0	14. 0	14. 30	·1407					
17. 45	17. 30	15. 14	·1409					
17. 53	16. 30	15. 29	·1413					
18. 0	18. 0	15. 44	·1411					
18. 26	18. 30	15. 58	·1414					
18. 33	16. 45	16. 44	·1402					
18. 42	18. 40	17. 21	·1405					
18. 59	17. 50	17. 57	·1403					
19. 17	19. 10	18. 14	·1397					
19. 25	17. 50	18. 20	·1401					
19. 35	19. 0	19. 4	·1395					
19. 40	17. 20	19. 15	·1398					
20. 0	20. 10	19. 21	·1393					
20. 10	18. 0	19. 27	·1398					
20. 19	19. 30		***					
20. 30	18. 0	20. 57	·1389					
20. 50	20. 50	21. 35	·1361					
21. 22	21. 55	21. 57	·1367					
22. 25	29. 10	21. 59	·1365					
22. 38	28. 0	22. 33	·1384					
23. 10	33. 0	22. 50	·1383					
23. 33	30. 0	23. 13	·1390					
	(†)	23. 59	·1406					
May 5		May 5		May 5		May 5		
0. 31	20. 30. 5	0. 0	·1406	0. 0	·03072	0. 30	61·0	61·0
1. 22	28. 50	0. 18	·1400	3. 59	·03141	8. 0	61·8	62·6
2. 21	28. 40	0. 37	·1403	8. 4	·03133	21. 0	61·0	61·4
2. 59	26. 30	0. 58	·1397	11. 22	·03153	22. 0	61·0	61·3
3. 18	22. 20	1. 22	·1408	13. 17	·03140	23. 0	61·1	61·7
4. 20	25. 30	2. 14	·1410	14. 29	·03120			
4. 58	24. 30	2. 32	·1402	16. 8	·03130			
5. 32	25. 0	2. 47	·1404	20. 22	·03108			
6. 6	24. 0	3. 6	·1399	23. 0	·03090			
6. 38	24. 30	3. 27	·1418	23. 42	·03100			
6. 44	23. 40	3. 40	·1416		(†)			
8. 49	24. 0	3. 57	·1414					
11. 13	23. 20	4. 14	·1420					
11. 46	22. 15	4. 47	·1414					
12. 36	23. 0	5. 29	·1424					
13. 3	25. 30	5. 40	·1420					
13. 35	23. 0	6. 21	·1418					
		6. 47	·1425					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
May 5		May 5						
h m	° ′ ″	h m		h m		h m	°	°
14. 9	20. 23. 20	7. 9	·1414					
14. 43	21. 25	7. 24	·1421					
15. 13	23. 5	7. 45	·1417					
15. 20	22. 20	8. 46	·1422					
15. 59	23. 5	9. 5	·1419					
16. 10	21. 45	11. 18	·1415					
16. 39	21. 15	11. 39	·1419					
17. 41	22. 50	12. 25:	·1411					
18. 19	21. 0	13. 34	·1420					
18. 28	21. 30	15. 23	·1404					
18. 38	20. 15	15. 51	·1409					
19. 0	20. 0	16. 30	·1407					
19. 11	21. 30	17. 6	·1400					
19. 22	19. 15	18. 25	·1403					
20. 19	19. 20	19. 40	·1394					
20. 40	21. 30	19. 53	·1396					
21. 7	21. 45	20. 6	·1389					
21. 27	23. 30	20. 28	·1383					
21. 37	22. 15	20. 57	·1386					
22. 23	25. 55	21. 43	·1378					
22. 32	25. 0	23. 6	·1400					
23. 10	26. 30	23. 59	·1414					
23. 20	26. 5							
23. 59	27. 15							
May 6		May 6		May 6		May 6		
0. 0	20. 27. 15	0. 0	·1414		(†)	0. 0	62 ·0	62 ·7
1. 27	28. 40	0. 20	·1415	0. 15	·03104	1. 0	62 ·2	62 ·8
3. 24	24. 10	1. 45	·1424	6. 24	·03225	2. 0	62 ·2	63 ·0
5. 12	22. 40	2. 50	·1417	9. 46	·03238	3. 0	62 ·7	63 ·4
6. 5	17. 0	3. 19	·1422	10. 16	·03220	6. 45	62 ·9	64 ·2
6. 27	18. 30	5. 10	·1422	14. 38	·03210	9. 0	63 ·7	64 ·9
6. 47	18. 5	5. 47	·1430	17. 35	·03220	10. 30	63 ·8	65 ·0
6. 58	19. 20	6. 10	·1428	22. 46	·03156	19. 15	63 ·0	63 ·4
8. 3	19. 20	6. 22	·1431	23. 59	·03142	21. 0	62 ·8	63 ·1
9. 14	20. 0	6. 57	·1420			22. 0	63 ·0	63 ·1
9. 33	19. 30	10. 24	·1419			23. 0	63 ·2	63 ·4
9. 50	23. 10	11. 5	·1414					
10. 19	19. 30	12. 12	·1413					
10. 50	20. 10	12. 46	·1408					
11. 15	22. 10	14. 36	·1410					
11. 50	19. 5	15. 29	·1403					
12. 15	18. 10	16. 10	·1408					
13. 3	20. 30	21. 50	·1396					
13. 27	19. 10	22. 59	·1400					
14. 2	21. 10	23. 59	·1406					
14. 32	19. 0							
15. 38	22. 20							
16. 40	20. 0							
19. 36	18. 30							
21. 38	21. 0							
23. 0	25. 30							
23. 59	26. 30							
May 7		May 7		May 7		May 7		
0. 0	20. 26. 30	0. 0	·1406	0. 0	·03142	0. 0	63 ·2	63 ·4
6. 34	22. 0	2. 7	·1406	3. 53	·03230	1. 0	63 ·6	64 ·0
9. 2	22. 0	5. 49	·1420	8. 52	·03246	2. 0	63 ·6	64 ·0

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
May 7		May 7		May 7		May 7		
h m	° ′ ″	h m		h m		h m	°	°
9. 29	20. 21. 0	6. 9	·1418	19. 53	·03175	3. 0	63 ·7	64 ·c
10. 3	21. 5	6. 29	·1420	21. 15	·03140	6. 0	63 ·7	64 ·5
	(†)	7. 0	·1415	22. 48	·03139	9. 0	63 ·7	64 ·6
10. 57	20. 30	11. 7	·1417		(†)	19. 0	62 ·6	62 ·8
11. 23	21. 0	14. 6	·1408			21. 0	62 ·2	62 ·2
14. 59	21. 30	16. 10	·1414			22. 0	62 ·1	62 ·2
17. 20	19. 0	17. 18	·1413			23. 0	62 ·5	62 ·7
17. 46	17. 30	17. 58	·1406					
19. 10	21. 0	18. 12	·1409					
19. 33	22. 45	19. 44	·1394					
19. 52	25. 50	20. 9	·1404					
20. 19	25. 10	23. 59	·1404					
23. 59	31. 0							
May 8		May 8		May 8		May 8		
0. 0	20. 31. 0	0. 0	·1404		(†)	0. 0	62 ·6	62 ·8
0. 54	33. 30	0. 19	·1414	1. 0	·03150*	1. 0	62 ·6	63 ·0
1. 27	33. 5	0. 29	·1404	2. 34	·03199	2. 0	62 ·7	63 ·4
1. 49	30. 20	0. 39	·1408	5. 52	·03342	3. 0	63 ·2	63 ·9
2. 17	31. 30	0. 45	·1404	9. 41	·03305	8. 15	66 ·0	66 ·7
2. 48	29. 5	1. 0	·1409	15. 0	·03283	9. 0	65 ·0	66 ·0
3. 36	30. 20	1. 48	·1401	20. 55	·03184	9. 30	..	65 ·4
4. 2	32. 0	2. 5	·1423	22. 28	·03181	21. 0	63 ·1	63 ·8
4. 15	30. 0		(†)	23. 59	·03210	22. 0	63 ·0	63 ·8
4. 23	30. 40	3. 0	·1414*			23. 0	63 ·2	64 ·0
4. 47	26. 0	5. 10	·1414					
5. 9	25. 45	7. 6	·1420					
	(†)	8. 8	·1418					
8. 52	24. 20	9. 7	·1422					
10. 17	22. 5		***					
10. 40	24. 15	9. 59	·1421					
11. 15	21. 10	10. 14	·1412					
11. 29	23. 0	10. 35	·1429					
12. 18	20. 0	10. 39	·1423					
14. 12	20. 20	10. 46	·1430					
14. 20	19. 5	11. 10	·1418					
14. 29	19. 55	11. 28	·1428					
14. 39	18. 40	13. 8	·1411					
14. 46	21. 0	14. 15	·1411					
15. 0	18. 30	14. 34	·1408					
15. 42	19. 30	14. 45	·1414					
16. 3	16. 40	14. 58	·1409					
16. 28	22. 25	15. 35	·1414					
17. 23	22. 0	16. 27	·1400					
17. 38	23. 30	16. 48	·1406					
17. 58	23. 30	17. 47	·1398					
18. 14	25. 45	18. 43	·1411					
19. 25	20. 0	20. 35	·1406					
20. 37	19. 40	20. 50	·1407					
22. 50	24. 30	22. 26	·1393					
23. 59	25. 55	23. 59	·1396					
May 9		May 9		May 9		May 9		
0. 0	20. 25. 55	0. 0	·1396	0. 0	·03210	0. 0	63 ·5	64 ·3
0. 11	26. 0	4. 47	·1420	4. 20	·03262	1. 0	64 ·0	64 ·7
0. 29	27. 0	5. 35	·1418	10. 2	·03260	2. 0	64 ·0	65 ·0
2. 9	27. 40	5. 51	·1422	19. 30	·03213	3. 0	64 ·0	65 ·0
3. 59	25. 15	9. 35	·1420	22. 25	·03185	9. 0	64 ·1	65 ·0

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.
May 20 h m	° ′ ″
0. 0	20. 28. 30
2. 18	29. 30
4. 0	27. 55
4. 24	29. 0
4. 59	26. 0
6. 39	23. 5
6. 50	23. 40
7. 16	22. 15
8. 33	21. 0
9. 10	18. 0
9. 45	20. 10
10. 11	16. 40
10. 46	18. 30
11. 8	17. 30
11. 19	18. 20
11. 30	17. 10
11. 43	18. 20
12. 0	16. 50
12. 59	20. 15
13. 55	18. 30
14. 30	20. 0
14. 53:	23. 40
15. 45	20. 20
17. 55	17. 20
20. 15	18. 20
22. 40	23. 25
23. 59	27. 25
May 21	
0. 0	20. 27. 25
0. 51	28. 30
3. 40	25. 0
3. 53	25. 15
5. 39	23. 50
5. 55	24. 0
8. 44	22. 10
8. 58	19. 45
9. 10	20. 40
9. 23	20. 0
9. 49	21. 55
10. 15	20. 40
12. 12	20. 20
13. 5	21. 0
14. 0	18. 35
14. 14	20. 0
14. 40	20. 0
14. 56	21. 10
15. 40	22. 0
15. 55	19. 55
16. 15	19. 50
16. 56	21. 20
17. 15	19. 30
17. 20	20. 20
17. 31	18. 20
17. 55	18. 20
19. 17	16. 0
21. 15	17. 35
22. 6	19. 20

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
May 20 h m	
0. 0	·1402
1. 47	·1419
2. 25	·1415
3. 28	·1429
3. 57	·1417
4. 24	·1414
5. 59	·1433
6. 15	·1431
6. 40	·1437
7. 16	·1431
7. 27	·1440
8. 48	·1426
	***
9. 57	·1424
10. 15	·1430
10. 27	·1425
11. 6	·1429
11. 18	·1420
11. 37	·1425
11. 45	·1423
12. 35	·1426
14. 57	·1416
15. 44	·1426
17. 46	·1426
18. 50	·1418
21. 56	·1408
23. 59	·1410
May 21	
0. 0	·1410
0. 51	·1414
1. 19	·1415
2. 35	·1425
3. 5	·1424
3. 48	·1430
3. 57	·1440
4. 37	·1434
5. 16	·1441
5. 39	·1435
5. 49	·1443
6. 20	·1438
6. 55	·1439
7. 0	·1444
7. 14	·1439
7. 40	·1444
8. 6	·1439
8. 15	·1444
8. 28	·1434
8. 51	·1426
9. 30	·1436
10. 40	·1434
10. 50	·1429
10. 59	·1432
12. 0	·1429
12. 16	·1431
12. 25	·1423
13. 9	·1430
13. 19	·1425

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
May 20 h m	
0. 0	·02950
1. 20	·02961
3. 56	·03020
14. 0	·03009
20. 4	·02980
22. 40	·02940
23. 59	·02939
May 21	
0. 0	·02939
1. 2	·02930
2. 26	·02963
10. 10	·02960
15. 36	·02977
21. 10	·02918
21. 23	·02922
22. 50	·02910
23. 59	·02910

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
May 20 h m	°	°
0. 0	60·9	61·5
1. 0	61·4	62·0
2. 0	61·2	61·7
3. 0	61·4	61·8
8. 0	61·4	61·5
8. 20	61·0	60·8
9. 0	61·2	61·7
21. 0	60·1	60·6
22. 0	60·2	60·5
23. 0	60·3	60·7
May 21		
0. 0	59·6	60·1
1. 0	59·5	59·9
2. 0	59·5	59·9
3. 0	59·3	59·7
5. 30	59·5	59·5
9. 0	59·5	59·8
20. 0	59·2	59·2
21. 0	59·0	59·4
22. 0	59·0	59·2
23. 0	59·2	59·5

Greenwich Mean Solar Time.	Western Declination.
May 21 h m	° ′ ″
22. 43	20. 22. 0
22. 53	21. 10
23. 10	22. 40
23. 59	24. 30
May 22	
0. 0	20. 24. 30
0. 27	26. 0
0. 59	25. 0
2. 55	25. 50
5. 23	22. 25
6. 31	22. 20
6. 59	21. 5
7. 58	20. 55
8. 28	22. 5
11. 50	21. 30
12. 5	22. 30
12. 40	20. 30
13. 32	20. 50
13. 50	20. 0
14. 7	20. 40
15. 0	18. 40
16. 3	22. 20
16. 26	22. 0
16. 58	19. 15
19. 26	17. 0
20. 12	17. 5
23. 16	24. 0
23. 59	24. 30
May 23	
0. 0	20. 24. 30
4. 32	24. 25
7. 1	21. 20
7. 30	19. 55
8. 30	22. 0
8. 55	21. 0
9. 5	22. 0

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
May 21 h m	
13. 49	·1420
14. 16	·1425
14. 35	·1419
15. 17	·1429
15. 29	·1426
15. 45	·1431
15. 57	·1425
17. 6	·1425
17. 24	·1429
17. 33	·1426
17. 58	·1434
19. 20	·1421
20. 55	·1422
21. 40	·1413
22. 30	·1415
23. 7	·1406
23. 40	·1406
23. 59	·1415
May 22	
0. 0	·1415
0. 13	·1410
0. 25	·1417
0. 50	·1409
1. 47	·1414
2. 3	·1424
2. 18	·1418
3. 18	·1425
4. 8	·1423
5. 9	·1431
5. 49	·1427
6. 14	·1430
6. 27	·1425
8. 17	·1430
8. 51	·1423
9. 15	·1429
9. 55	·1424
	***
12. 25	·1426
14. 29	·1424
15. 42	·1415
16. 17	·1422
16. 49	·1419
18. 0	·1421
19. 28	·1419
22. 12	·1401
23. 30	·1412
23. 45	·1407
23. 59	·1409
May 23	
0. 0	·1409
0. 37	·1413
1. 15	·1421
1. 37	·1420
2. 39	·1429
3. 9	·1426
3. 25	·1434

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m	
May 22	
0. 0	·02910
0. 33	·02920
1. 0	·02905
5. 25	·02962
9. 43	·02937
11. 30	·02940
16. 10	·02910
22. 50	·02810
23. 59	·02841
May 23	
0. 0	·02841
0. 29	·02850
3. 0	·02850
9. 6	·02917
9. 21	·02904
14. 59	·02950
15. 33	·02940

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
May 22		
0. 0	59·8	59·8
0. 30	59·4	59·5
1. 0	59·3	59·5
2. 0	59·5	59·8
3. 0	59·5	59·9
6. 20	59·2	59·2
9. 0	59·0	59·4
21. 0	57·2	57·5
22. 0	57·6	57·8
23. 0	58·2	58·5
May 23		
0. 0	58·8	59·1
1. 0	58·3	58·7
2. 0	58·2	58·6
3. 0	58·5	58·7
9. 0	59·1	59·9
21. 0	59·7	60·0
22. 0	59·7	60·0

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
May 23 h m	° ′ ″	May 23 h m		May 23 h m		May 23 h m	°	°
9. 33	20. 20. 30	3. 56	·1425	22. 30	·02870	23. 0	59 ·7	60 ·0
10. 47	21. 50	4. 39	·1435	23. 59	·02883			
10. 59	21. 0	8. 6	·1430					
11. 15	20. 40	8. 28	·1433					
11. 31	22. 0	8. 55	·1429					
12. 10	20. 0	9. 4	·1433					
12. 40	20. 50	9. 30	·1424					
13. 22	19. 50	9. 59	·1426					
13. 55	20. 45	10. 20	·1423					
14. 30	19. 30	10. 44	·1428					
14. 45	21. 45		***					
15. 20	22. 45	14. 39	·1413					
15. 34	22. 0	14. 55	·1419					
16. 9	23. 40	15. 6	·1416					
16. 49	21. 0	15. 10	·1420					
16. 59	21. 0	15. 49	·1412					
17. 20	19. 30	16. 37	·1419					
18. 1	19. 30	17. 16	·1419					
18. 39	25. 40	17. 45	·1429					
18. 58	24. 20	18. 24	·1422					
19. 19	25. 25	18. 45	·1424					
20. 17	19. 5	19. 3	·1409					
20. 30	19. 35	19. 35	·1424					
20. 48	18. 45	19. 50	·1417					
23. 12	21. 50	20. 36	·1418					
23. 59	22. 45	22. 51	·1405					
		23. 51	·1415					
		23. 59	·1409					
May 24		May 24		May 24		May 24		
0. 0	20. 22. 45	0. 0	·1409	0. 0	·02883	0. 0	59 ·9	60 ·2
2. 37	24. 55	0. 16	·1407	1. 26	·02921	1. 0	60 ·0	60 ·2
3. 0	24. 50	0. 41	·1411	6. 18	·02940	2. 0	59 ·9	60 ·2
4. 45	25. 10	1. 23	·1411	6. 38	·02958	3. 0	59 ·7	60 ·0
5. 4	24. 10	1. 49	·1419	9. 6	·02925	5. 40	59 ·5	59 ·8
5. 27	24. 10	2. 14	·1413	18. 10	·02880	7. 40	59 ·3	59 ·8
6. 4	22. 5	2. 49	·1422	22. 40	·02816	9. 0	59 ·2	59 ·9
6. 29	15. 10	3. 5	·1416	23. 59	·02790	11. 15	59 ·6	60 ·0
6. 49	17. 5	3. 46	·1419			21. 0	57 ·6	57 ·7
7. 14	20. 10	3. 55	·1426			22. 0	57 ·7	58 ·0
7. 33	20. 0	4. 39	·1419			23. 0	57 ·9	58 ·0
8. 43	22. 5	4. 47	·1428					
9. 30	21. 50	5. 4	·1423					
9. 47	22. 10	6. 2	·1429					
10. 5	21. 10	6. 20	·1421					
10. 17	22. 0	6. 36	·1438					
11. 9	21. 0	6. 59	·1431					
16. 29	20. 0	7. 31	·1421					
19. 14	18. 20	7. 40	·1425					
19. 58	19. 10	8. 35	·1418					
21. 39	20. 0	10. 26	·1423					
23. 6	23. 30	12. 16	·1416					
23. 59	24. 50	14. 47	·1420					
		19. 45	·1415					
		23. 9	·1408					
		23. 50	·1417					
		23. 59	·1415					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
May 25 h m	° ′ ″	May 25 h m		May 25 h m		May 25 h m	°	°
0. 0	20. 24. 50	0. 0	·1415	0. 0	·02790	0. 0	58 ·0	58 ·2
0. 40	25. 20	0. 23	·1412	1. 58	·02830	1. 0	58 ·0	58 ·3
6. 25	23. 45	0. 55	·1419	8. 18	·02879	2. 0	58 ·1	58 ·4
6. 55	24. 0	2. 58	·1425	20. 40	·02917	3. 0	58 ·3	58 ·7
8. 7	22. 55		***	22. 40	·02890	3. 30	58 ·6	58 ·8
9. 15	22. 0	4. 21	·1423	23. 59	·02885	7. 0	59 ·2	59 ·4
10. 0	22. 30	5. 20	·1432			8. 0	59 ·5	59 ·7
10. 23	21. 55	5. 34	·1429			9. 0	59 ·0	59 ·8
12. 5	21. 35	5. 59	·1436			21. 35	59 ·7	60 ·1
	***	6. 10	·1431			22. 30	59 ·5	59 ·7
16. 9	20. 15	6. 20	·1436					
16. 43	18. 50	7. 25	·1429					
17. 8	18. 35	7. 54	·1434					
17. 13	19. 0	8. 24	·1429					
17. 24	18. 15	13. 26	·1420					
17. 45	18. 55	14. 4	·1422					
20. 38	17. 30	14. 35	·1418					
22. 46	22. 0	17. 29	·1417					
23. 59	25. 0	18. 30	·1418					
		22. 8	·1405					
		23. 59	·1407					
May 26		May 26		May 26		May 26		
0. 0	20. 25. 0	0. 0	·1407	0. 0	·02885	0. 0	59 ·7	60 ·2
2. 28	26. 0	2. 48	·1425	3. 11	·02908	3. 0	60 ·0	60 ·4
4. 57	23. 0	3. 15	·1425	5. 5	·02930	4. 0	60 ·1	60 ·5
12. 18	21. 5	4. 30	·1431	8. 59	·02935	9. 0	60 ·3	61 ·2
12. 47	22. 5	4. 43	·1439	16. 45	·02955	10. 0	59 ·9	60 ·7
13. 15	20. 50	4. 55	·1435	22. 15	·02901	19. 30	60 ·4	60 ·6
15. 0	21. 0	5. 4	·1438	23. 59	·02915	21. 0	60 ·0	60 ·6
15. 20	20. 10	7. 31	·1437			21. 30	..	60 ·4
16. 11	19. 50	9. 10	·1433			22. 0	60 ·1	60 ·6
17. 47	17. 15	9. 59	·1435			23. 0	60 ·2	60 ·8
19. 15	17. 40	11. 5	·1428					
19. 28	17. 0	11. 18	·1433					
20. 30	19. 20	12. 29	·1427					
21. 57	20. 30	12. 49	·1432					
23. 25	23. 20	13. 25	·1428					
23. 59	23. 35	16. 50	·1426					
		19. 47	·1421					
		21. 5	·1414					
		21. 46	·1420					
		22. 9	·1412					
		23. 59	·1413					
May 27		May 27		May 27		May 27		
0. 0	20. 23. 35	0. 0	·1413	0. 0	·02915	0. 0	60 ·6	61 ·1
0. 54	24. 0		***	2. 9	·02955	1. 0	60 ·9	61 ·2
0. 57	24. 55	0. 40	·1418	2. 14	·02976	2. 0	62 ·1	62 ·1
2. 46	24. 0	0. 45	·1413	2. 27	·02989	3. 0	63 ·5	64 ·0
4. 32	22. 0	0. 55	·1420	3. 24	·03041	5. 30	60 ·8	61 ·3
8. 0	21. 35	1. 41	·1423	4. 27	·03040	7. 0	61 ·0	61 ·4
8. 12	23. 20	1. 43	·1416	7. 14	·03004	9. 0	60 ·5	61 ·1
8. 32	24. 10	2. 33	·1425	11. 0	·02968	19. 0	59 ·4	59 ·6
8. 58	23. 55	3. 4	·1419	11. 6	·02940	21. 0	59 ·7	59 ·9
9. 40	22. 20	3. 12	·1425	11. 13	·02990	22. 0	59 ·9	60 ·0
9. 55	22. 55	3. 30	·1415	11. 16	·02961	23. 0	59 ·9	60 ·2
9. 59	22. 15	5. 44	·1431	11. 25	·02977			

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.
May 31 h m	° ′ ″
8. 11	20. 21. 35
8. 32	8. 5
9. 7	16. 0
9. 22	14. 35
9. 50	8. 55
10. 6	11. 0
10. 22	8. 25
10. 23	9. 0
10. 42	6. 50
11. 7	11. 40
11. 37	10. 35
11. 50	11. 40
11. 57	8. 35
12. 9	9. 0
12. 24	10. 35
12. 43	7. 30
13. 10	10. 25
13. 40	7. 20
14. 1	2. 15
14. 26	9. 50
14. 56	7. 20
15. 5	8. 40
15. 27	6. 30
15. 59	15. 15
16. 53	18. 30
17. 0	17. 20
17. 20	18. 5
17. 56	17. 35
18. 20	15. 20
19. 7	19. 20
19. 27	18. 50
19. 52	21. 5
20. 24	20. 20
21. 32	21. 50
22. 6	25. 45
22. 29	25. 0
	(†)
June 1	
h m	(†)
1. 0	20. 31. 42*
3. 0	28. 55*
6. 0	21. 0
7. 54	20. 45
8. 58	19. 10
9. 22	19. 0
9. 58	17. 10
10. 20	17. 30
10. 34	14. 45
10. 51	17. 35
11. 21	5. 30
11. 30	8. 35
11. 50	3. 0

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
May 31 h m	
6. 46	·1427
6. 54	·1428
7. 35	·1422
7. 42	·1425
7. 52	·1423
8. 3	·1426
8. 14	·1417
8. 27	·1402
8. 34	·1416
8. 42	·1410
8. 49	·1415
9. 16	·1411
9. 38	·1401
9. 47	·1407
10. 3	·1406
10. 28	·1420
10. 50	·1400
11. 13	·1398
11. 38	·1410
11. 51	·1396
12. 17	·1414
12. 58	·1394
13. 40	·1427
13. 59	·1411
14. 15	·1404
14. 44	·1407
15. 15	·1405
15. 35	·1398
16. 5	·1414
16. 32	·1391
16. 54	·1386
17. 41	·1391
18. 13	·1386
18. 23	·1388
19. 6	·1382
19. 34	·1388
19. 57	·1383
20. 7	·1384
21. 15	·1376
21. 59	·1378
22. 18	·1381
	(†)
June 1	
h m	(†)
1. 0	·1397*
3. 0	·1392*
6. 0	·1407
6. 18	·1406
6. 24	·1413
7. 18	·1405
8. 18	·1409
8. 57	·1406
9. 15	·1410
10. 13	·1405
10. 35	·1469
10. 52	·1455
11. 2	·1458

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
May 31 h m	
15. 53	·02968
16. 30	·02965
17. 10	·03000
19. 45	·03032
22. 20	·03030
	(†)
June 1 h m	(†)
1. 0	·03100*
3. 0	·03167*
6. 0	·03263
10. 30	·03220
10. 35	·03248
11. 2	·03152
11. 25	·03141
12. 40	·02980
13. 1	·03000
13. 20	·03090
13. 40	·03100
14. 15	·03060
14. 23	·03070

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
June 1		
0. 0	63 ·5	..
1. 0	63 ·8	64 ·2
2. 20	62 ·9	65 ·4
3. 0	64 ·7	65 ·4
7. 0	63 ·8	66 ·3
8. 0	63 ·6	65 ·8
9. 0	63 ·6	64 ·7
11. 30	62 ·2	62 ·8
12. 0	62 ·0	62 ·5
21. 30	62 ·4	64 ·0

Greenwich Mean Solar Time.	Western Declination.
June 1 h m	° ′ ″
12. 0	20. 8. 20
12. 35	19. 58. 50
12. 41	59. 50
12. 56	19. 58. 0
13. 21	20. 11. 5
13. 29	11. 0
13. 42	12. 10
14. 2	16. 5
14. 10	15. 20
14. 27	21. 15
14. 47	10. 0
15. 10	9. 0
15. 18	7. 15
15. 31	12. 40
15. 48	21. 30
15. 59	18. 5
16. 14	18. 10
16. 34	14. 45
16. 48	16. 40
16. 50	12. 10
16. 57	14. 10
17. 18	16. 15
17. 35	12. 15
18. 0	9. 30
18. 40	13. 5
18. 58	12. 45
19. 5	14. 20
19. 11	14. 0
19. 18	16. 25
19. 23	15. 10
20. 4	15. 35
20. 30	13. 20
20. 44	16. 50
21. 5	16. 25
22. 0	20. 10
22. 8	22. 35
22. 53	23. 25
23. 59	25. 35
June 2	
0. 30	20. 28. 55*
8. 30	20. 47*
21. 0	19. 15*

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
June 1 h m	
11. 44	·1428
12. 2	·1376
12. 15	·1384
12. 24	·1383
12. 31	·1389
12. 58	·1360
13. 54	·1395
14. 15	·1387
14. 23	·1403
14. 39	·1389
15. 14	·1385
15. 25	·1393
15. 36	·1389
15. 40	·1392
15. 57	·1384
16. 11	·1392
16. 21	·1390
16. 47	·1393
16. 55	·1402
17. 9	·1401
17. 20	·1392
18. 4	·1384
18. 15	·1385
18. 21	·1390
18. 41	·1380
18. 49	·1383
18. 59	·1392
19. 3	·1391
19. 21	·1403
19. 37	·1399
20. 5	·1401
20. 20	·1395
20. 52	·1396
22. 0	·1389
22. 6	·1393
22. 20	·1386
22. 49	·1387
23. 4	·1390
23. 25	·1383
23. 37	·1393
23. 59	·1393
June 2	
0. 0	·1393
0. 26	·1389
0. 54	·1407
1. 5	·1410
1. 38	·1400
1. 59	·1405
2. 14	·1391
2. 20	·1395
2. 29	·1390
2. 41	·1405
2. 54	·1408
2. 59	·1403
3. 7	·1407
3. 16	·1345
3. 54	·1399

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
June 1 h m	
14. 39	·03026
15. 35	·03110
15. 52	·03071
16. 37	·03060
16. 42	·03049
18. 5	·03105
22. 44	·03157
23. 59	·03180
June 2	
0. 0	·03180
3. 5	·03240
3. 10	·03209
3. 20	·03250
4. 12	·03288
7. 35	·03261
11. 18	·03274
19. 13	·03192
21. 54	·03203
22. 53	·03177
23. 59	·03170

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	°	°
June 2		
0. 30	62 ·9	64 ·7
5. 0	63 ·3	65 ·8
8. 30	63 ·6	65 ·8
10. 45	63 ·6	66 ·0
11. 0	63 ·6	65 ·4
21. 0	62 ·5	64 ·1
22. 0	62 ·0	63 ·0
23. 0	62 ·3	63 ·4

The indications are taken from the sheets of the Photographic Record. except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

June 2. The declination photographic trace is suspected to be incorrect, and is therefore not used : it is supposed that the lower declination magnet was in contact. There is no suspicion over the eye observations made with the upper declination magnet, and therefore they are inserted.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
h m	° ′ ″	June 2 h m		h m		h m	°	°
		4. 16	·1407					
		4. 25	·1424					
		4. 49	·1417					
		5. 48	·1404					
		5. 55	·1412					
		6. 43	·1409					
		6. 57	·1404					
		7. 27	·1401					
		8. 10	·1399					
		8. 42	·1404					
		9. 15	·1399					
		10. 44	·1396					
		11. 33	·1398					
		17. 57	·1398					
		19. 7	·1398					
		20. 30	·1388					
		21. 50	·1393					
		22. 15	·1389					
		23. 20	·1392					
		23. 59	·1393					
June 3		June 3		June 3		June 3		
0. 0	20. 25. 0	0. 0	·1393	0. 0	·03170	0. 0	62 ·5	63· 9
1. 17	25. 15	1. 14	·1401	3. 54	·03192	1. 0	61 ·8	62 ·9
3. 19	24. 30	1. 39	·1395	5. 38	·03150	2. 0	61 ·8	63 ·1
5. 28	20. 40		***	6. 45	·03170	3. 0	61 ·6	63 ·0
6. 34	20. 50	5. 14	·1415	7. 6	·03152	5. 0	59 ·0	61 ·3
6. 47	21. 15	5. 24	·1408	7. 30	·03165	9. 0	60 ·8	62 ·6
6. 58	20. 55	5. 37	·1416	9. 52	·03144	9. 30	59 ·8	61 ·5
7. 18	17. 15	5. 49	·1410	15. 50	·03134	21. 0	60 ·9	61 ·8
8. 8	20. 55	5. 59	·1414	23. 10	·03045	22. 0	61 ·0	61 ·9
8. 46	21. 10	6. 8	·1410	23. 59	·03060	23. 0	61 ·2	62 ·2
9. 47	20. 5	6. 37	·1423					
10. 5	20. 35	6. 59	·1404					
14. 50	20. 5	7. 29	·1418					
16. 24	17. 40	8. 0	·1415					
17. 10	17. 30	10. 23	·1410					
17. 58	18. 20	10. 33	·1415					
18. 18	17. 30	11. 55	·1407					
18. 28	18. 15	14. 31	·1407					
18. 54	16. 30	15. 14	·1412					
19. 4	18. 30	17. 10	·1409					
19. 35	16. 35	17. 32	·1403					
21. 15	19. 40	17. 47	·1407					
23. 12	24. 10	18. 55	·1394					
23. 59	26. 35	19. 24	·1400					
		19. 39	·1397					
		19. 57	·1402					
		21. 36	·1396					
		23. 17	·1402					
		23. 45	·1397					
		23. 59	·1403					
June 4		June 4		June 4		June 4		
0. 0	20. 26. 35	0. 0	·1403	0. 0	·03060	0. 0	61 ·2	62 ·3
0. 49	27. 55	0. 27	·1411	4. 28	·03140	1. 0	61 ·4	62 ·5
2. 10	26. 50	0. 44	·1400	8. 5	·03119	2. 0	61 ·5	62 ·6
2. 20	27. 30	0. 59	·1405	9. 57	·03096	3. 0	61 ·5	62 ·7

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
June 4 h m	° ′ ″	June 4 h m		June 4 h m		June 4 h m	°	°
2. 43	20. 25. 5	1. 35	·1396	12. 0	·03110	7. 30	61 ·5	62 ·8
3. 29	24. 45	2. 5	·1409	22. 46	·03037	9. 0	60 ·8	61 ·6
3. 50	23. 35	2. 20	·1401	23. 59	·03040	9. 25	60 ·4	61 ·0
4. 9	24. 10	2. 38	·1412			21. 0	60 ·6	61 ·2
4. 48	23. 0	3. 9	·1405			22. 0	60 ·7	61 ·4
5. 30	19. 50	3. 45	·1419			23. 0	60 ·7	61 ·4
6. 24	20. 45	3. 57	·1411					
14. 36	19. 40	4. 12	·1419					
14. 55	20. 40	4. 25	·1414					
15. 32	19. 0	4. 32	·1416					
16. 37	19. 10	4. 43	·1405					
17. 58	17. 45	5. 9	·1403					
18. 32	20. 30	5. 39	·1414					
19. 12	18. 0	6. 59	·1418					
19. 21	24. 0	8. 5	·1414					
19. 54	17. 0	12. 25	·1415					
20. 59	17. 30	14. 9	·1411					
22. 57	23. 10	17. 35	·1409					
23. 59	25. 10	18. 38	·1407					
		19. 12	·1396					
		19. 27	·1400					
		19. 54	·1398					
		20. 10	·1404					
		22. 59	·1393					
		23. 40	·1405					
		23. 54	·1401					
		23. 59	·1407					
June 5		June 5		June 5		June 5		
0. 0	20. 25. 10	0. 0	·1407	0. 0	·03040	0. 0	61 ·0	62 ·0
0. 18	27. 20	0. 20	·1409	0. 55	·03035	1. 0	61 ·0	62 ·0
0. 44	28. 15	1. 14	·1407	6. 15	·03092	2. 0	61 ·0	61 ·9
1. 24	27. 10	1. 30	·1418	9. 2	·03070	3. 0	61 ·1	62 ·0
2. 56	27. 0	1. 50	·1415	9. 23	·03056	8. 30	..	61 ·3
3. 37	24. 50	2. 18	·1425	18. 33	·03051	9. 0	59 ·9	60 ·4
5. 40	21. 0	3. 37	·1418	22. 40	·03000	21. 0	60 ·8	61 ·5
6. 49	20. 35	4. 25	·1427	23. 59	·02992	22. 0	60 ·8	61 ·7
7. 39	21. 0	4. 55	·1424			23. 0	60 ·9	61 ·4
8. 20	18. 10	5. 16	·1428					
8. 56	12. 35	6. 16	·1427					
9. 17	16. 0	6. 48	·1422					
9. 37	15. 30	7. 2	·1425					
10. 0	16. 30	7. 12	·1420					
10. 39	19. 10	7. 24	·1425					
11. 54	20. 0	7. 59	·1428					
13. 24	19. 15	8. 36	·1416					
13. 47	20. 0	9. 4	·1428					
14. 10	19. 0	9. 49	·1410					
14. 55	19. 0	10. 9	·1414					
15. 26	19. 45	14. 53	·1414					
16. 37	17. 35	15. 15	·1417					
17. 4	18. 30	16. 58	·1408					
17. 50	16. 55	17. 19	·1413					
18. 30	16. 35	17. 39	·1404					
18. 37	17. 10	20. 4	·1396					
19. 27	16. 5	21. 26	·1404					
20. 4	17. 10	23. 31	·1402					
20. 27	19. 10	23. 59	·1406					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
June 13	° ′ ″	June 13				June 13	°	°
h m		h m		h m		h m		
23. 6	20. 24. 0	23. 15	·1391			22. 0	61·8	62·3
23. 59	25. 30	23. 59	·1392			23. 0	62·0	62·7
June 14		June 14		June 14		June 14		
0. 0	20. 25. 30	0. 0	·1392	0. 0	·03000	0. 0	62·0	62·7
1. 35	25. 55	1. 45	·1397	3. 20	·03010	1. 0	62·0	62·8
2. 49	24. 0	2. 56	·1397	9. 9	·02973	2. 0	62·0	62·8
4. 7	22. 45	3. 10	·1405	14. 37	·02970	3. 0	61·8	62·7
5. 4	22. 50	4. 4	·1403	15. 14	·02950	8. 15	60·5	60·8
5. 25	22. 0	4. 14	·1398	16. 9	·02950	8. 40	60·8	61·3
6. 15	22. 0	4. 39	·1402	21. 26	·02913	9. 0	60·7	61·3
6. 25	21. 10	5. 4	·1398	22. 30	·02891	11. 30	60·4	61·2
9. 8	20. 10	5. 55	·1408	23. 59	·02900	21. 0	60·4	60·8
12. 19	20. 55	6. 9	·1411			22. 0	60·1	60·6
13. 3	22. 0	6. 26	·1406			23. 0	60·4	60·9
13. 36	20. 35	6. 54	·1411					
13. 47	21. 40	8. 4	·1409					
14. 6	21. 10	9. 57	·1412					
14. 25	25. 0	12. 36	·1407					
15. 37	17. 20	13. 15	·1409					
16. 9	19. 10	14. 19	·1406					
17. 40	18. 50	15. 10	·1415					
18. 5	14. 50	15. 48	·1405					
19. 25	14. 30	16. 47	·1411					
20. 40	15. 20	17. 8	·1407					
21. 47	18. 10	17. 29	·1412					
22. 50	23. 50	22. 8	·1390					
23. 59	27. 50	23. 59	·1392					
June 15		June 15		June 15		June 15		
0. 0	20. 27. 50	0. 0	·1392	0. 0	·02900	0. 0	60·4	61·0
0. 55	28. 20	1. 21	·1402	1. 30	·02900	1. 0	60·4	60·7
2. 8	27. 45	1. 43	·1398	5. 15	·02936	2. 0	60·4	60·9
3. 7	27. 30	1. 51	·1405	8. 45	·02910	3. 0	60·4	60·9
5. 28	21. 30	2. 0	·1399	13. 4	·02930	8. 0	59·6	60·4
6. 44	20. 5	2. 40	·1404	22. 12	·02874	9. 0	60·1	61·0
7. 45	20. 30	2. 50	·1399	23. 59	·02870	22. 0	60·2	61·2
9. 25	18. 40	3. 44	·1393					
9. 48	13. 30	3. 59	·1399					
9. 55	16. 30	4. 6	·1398					
10. 5	15. 5	4. 19	·1405					
11. 10	17. 0	5. 45	·1411					
11. 43	19. 0	6. 23	·1407					
13. 50	20. 25	6. 54	·1413					
14. 6	19. 35	7. 16	·1412					
15. 50	19. 20	7. 46	·1417					
16. 16	17. 40	9. 9	·1407					
16. 34	18. 0	9. 26	·1410					
18. 10	14. 30	9. 40	·1406					
19. 35	15. 30	9. 55	·1410					
19. 58	15. 0	10. 25	·1408					
20. 46	16. 30	10. 50	·1400					
21. 29	18. 0	11. 48	·1406					
22. 26	21. 50	15. 14	·1403					
22. 31	23. 20	17. 34	·1404					
22. 56	24. 0	18. 34	·1397					
23. 11	25. 50	21. 5	·1392					
23. 59	27. 0	21. 32	·1395					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
		June 15						
h m	° ′ ″	h m		h m		h m	°	°
		21. 47	·1392					
		22. 19	·1393					
		22. 37	·1385					
		23. 59	·1393					
June 16		June 16		June 16		June 16		
0. 0	20. 27. 0	0. 0	·1393	0. 0	·02870	1. 0	60·4	61·1
1. 0	28. 0	0. 15	·1392	5. 25	·02930	2. 10	..	60·5
4. 13	24. 0	0. 59	·1399	5. 33	·02946	3. 30	60·2	61·3
4. 23	24. 50	1. 19	·1392	5. 40	·02930	9. 0	59·7	61·0
4. 42	23. 40	2. 49	·1406	11. 40	·02940	21. 0	60·0	60·9
5. 33	22. 50	3. 31	·1405	12. 8	·02902	22. 0	59·7	60·7
5. 41	24. 45	4. 9	·1409	15. 19	·02920	23. 0	60·0	61·1
6. 4	23. 15	4. 26	·1418	18. 13	·02917			
7. 11	23. 30	4. 39	·1410	21. 25	·02877			
7. 16	24. 0	5. 7	·1412	23. 59	·02870			
8. 19	22. 40	5. 13	·1413					
8. 40	20. 0	5. 29	·1405					
9. 39	19. 0	5. 39	·1420					
10. 2	19. 40	6. 0	·1411					
10. 12	20. 40	6. 29	·1415					
10. 50	21. 20	7. 7	·1429					
11. 5	19. 10	7. 26	·1418					
11. 35	18. 20	8. 0	·1436					
11. 47	21. 30	8. 10	·1431					
12. 15	16. 20	8. 24	·1418					
12. 25	16. 0	8. 43	·1411					
13. 38	19. 20	9. 19	·1418					
14. 5	18. 40	9. 35	·1414					
14. 16	17. 0	9. 47	·1415					
14. 29	18. 0	9. 59	·1409					
14. 43	16. 55	10. 26	·1414					
15. 47	20. 0	10. 40	·1409					
16. 23	17. 55	10. 56	·1416					
17. 18	17. 20	11. 5	·1413					
17. 30	18. 45	11. 11	·1419					
17. 35	17. 40	11. 45	·1414					
17. 49	19. 0	12. 6	·1426					
18. 2	17. 50	12. 39	·1410					
18. 13	19. 0	13. 24	·1400					
18. 40	18. 0	14. 10	·1406					
19. 3	18. 55	14. 19	·1401					
19. 38	17. 5	14. 37	·1404					
19. 43	18. 15	14. 50	·1400					
19. 48	17. 10	15. 4	·1402					
19. 54	18. 0	15. 22	·1400					
20. 31	18. 0	15. 36	·1402					
20. 43	17. 0	15. 49	·1400					
21. 3	18. 15	16. 6	·1405					
22. 50	23. 20	17. 55	·1397					
23. 59	27. 20	18. 26	·1397					
		20. 6	·1392					
		21. 10	·1398					
		23. 59	·1403					
June 17		June 17		June 17		June 17		
0. 0	20. 27. 20	0. 0	·1403	0. 0	·02870	0. 0	60·1	61·3
0. 10	27. 50	0. 40	·1398	4. 50	·02920	1. 0	60·0	61·0

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol ⁝ attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
June 17		June 17		June 17		June 17		
h m	° ′ ″	h m		h m		h m	°	°
2. 18	20. 26. 50	0. 59	·1402	7. 5	·02950	2. 0	59 ·9	61 ·0
4. 10	22. 45	1. 19	·1398	9. 2	·02930	3. 0	59 ·9	61 ·0
6. 2	22. 0	2. 27	·1412	14. 10	·02928	8. 0	59 ·9	61 ·4
6. 39	19. 0	2. 59	·1408	20. 10	·02910	9. 0	59 ·7	61 ·5
7. 30	20. 40	3. 38	·1412	22. 21	·02900	21. 0	60 ·0	61 ·1
11. 40	20. 50	4. 7	·1408	23. 59	·02910	22. 0	59 ·9	61 ·1
16. 26	18. 35	4. 48:	·1422			23. 0	60 ·4	61 ·9
17. 40	16. 40	5. 19	·1414					
18. 0	17. 30	5. 37	·1422					
20. 27	15. 5	6. 6	·1420					
21. 29	16. 30	6. 23	·1412					
22. 47	20. 0	6. 55	·1415					
23. 59	25. 0	7. 45	·1412					
		8. 19	·1414					
		9. 0	·1410					
		9. 39	·1414					
		10. 0	·1409					
		12. 14	·1408					
		12. 59	·1407					
		14. 8	·1404					
		17. 45	·1406					
		23. 7	·1386					
		23. 59	·1390					
June 18		June 18		June 18		June 18		
0. 0	20. 25. 0	0. 0	·1390	0. 0	·02910	0. 0	60 ·4	62 ·2
1. 27	27. 50	0. 39	·1392	5. 6	·02982	1. 0	60 ·7	62 ·5
1. 36	27. 30	1. 18	·1406	10. 50	·03000	2. 0	60 ·7	62 ·5
2. 5	27. 40	1. 45	·1397	12. 29	·02981	3. 0	60 ·8	62 ·8
4. 41	23. 30	2. 35	·1406	17. 20	·03020	9. 0	61 ·5	63 ·8
5. 0	23. 45	3. 24	·1411	19. 40	·03021	10. 0	..	62 ·9
5. 49	21. 40	3. 37	·1408	21. 15	·03010	11. 0	..	62 ·0
6. 5	21. 55	3. 56	·1412	23. 59	·03018	11. 45	..	61 ·7
6. 15	21. 0	4. 17	·1410			21. 0	61 ·7	63 ·9
6. 35	21. 40	4. 36	·1413			22. 0	61 ·8	64 ·0
6. 44	21. 0	4. 50	·1423			23. 0	62 ·0	64 ·5
7. 20	21. 30	5. 9	·1412					
7. 27	22. 5		***					
8. 10	21. 0	5. 44	·1413					
8. 32	21. 25	6. 1	·1419					
8. 51	20. 30	6. 26	·1413					
8. 55	21. 35	6. 35	·1418					
9. 2	19. 50	6. 46	·1414					
9. 30	18. 55	7. 4	·1415					
10. 33	20. 0	7. 30	·1420					
11. 14	19. 15	8. 46	·1410					
11. 26	20. 30	8. 57	·1416					
11. 42	19. 50	9. 27	·1412					
13. 20	20. 0	9. 49	.1417					
13. 33	20. 30	10. 4	·1414					
13. 49	19. 50	10. 54	·1420					
13. 58	20. 45	11. 13	·1410					
14. 12	19. 40	11. 49	·1411					
15. 18	20. 30	12. 4	·1416					
16. 29	16. 45	12. 56	·1410					
17. 43	17. 30	13. 33	·1414					
17. 50	16. 45	14. 6	·1406					
18. 26	17. 10	14. 46	·1409					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
June 18		June 18						
h m	° ′ ″	h m		h m		h m	°	°
18. 29	20. 16. 30	14. 56	·1407					
19. 43	16. 15	15. 39	·1411					
21. 20	17. 55	16. 54	·1406					
23. 5	21. 50	19. 50	·1398					
23. 36	23. 0	22. 0	·1379					
23. 59	25. 0	23. 49	·1382					
		23. 59	·1392					
June 19		June 19		June 19		June 19		
0. 0	20. 25. 0	0. 0	·1392	0. 0	·03018	0. 0	62 ·2	64 ·7
0. 25	24. 15	1. 35	·1396	1. 14	·03030	1. 0	62 ·4	64 ·8
1. 55	26. 30	1. 48	·1402	4. 35	·03090	2. 0	62 ·3	64 ·8
4. 7	23. 40	2. 4	·1399	4. 50	·03080	3. 0	62 ·3	64 ·8
4. 42	24. 10	2. 19	·1404	6. 20	·03098	9. 0	62 ·2	63 ·9
4. 54	23. 0	2. 59	·1402	7. 36	·03085	10. 30	61 ·8	63 ·6
5. 15	23. 30	3. 17	·1410	11. 20	·03043	11. 15	61 ·5	62 ·9
5. 20	22. 40	3. 34	·1405	12. 5	·03000	11. 30	61 ·4	62 ·8
5. 30	23. 45	3. 55	·1414	15. 43	·03000	21. 0	60 ·7	62 ·0
5. 41	21. 20	4. 20	·1406	16. 21	·02990	22. 0	60 ·8	62 ·0
5. 48	22. 5	4. 39	·1420	16. 49	·03002	23. 0	61 ·2	62 ·6
6. 19	20. 25	4. 54	·1402	17. 30	·02950			
6. 29	20. 45	5. 20	·1415	18. 15	·02969			
6. 57	17. 30	5. 23	·1409	19. 2	·02943			
7. 5	18. 0	5. 33	·1422	22. 30	·02973			
7. 18	17. 30	5. 41	·1406	23. 59	·02990			
7. 43	20. 0	5. 50	·1415					
9. 35	21. 5	6. 7	·1418					
9. 55	20. 10	6. 19	·1408					
10. 16	21. 25	6. 25	·1412					
10. 59	20. 0	6. 38	·1400					
11. 49	15. 0	7. 2	·1412					
12. 10	13. 30	7. 18	·1408					
12. 33	18. 30	7. 40	·1411					
13. 53	18. 0	8. 0	·1409					
14. 0	19. 20	8. 20	·1418					
14. 4	18. 0	8. 42	·1413					
15. 9	17. 20	9. 50	·1410					
15. 18	18. 0	9. 59	·1415					
15. 33	17. 5	10. 35	·1413					
15. 49	19. 30	10. 44	·1408					
15. 57	19. 10	11. 39	·1424					
16. 2	19. 15	11. 49	·1421					
16. 20	16. 20	12. 3	·1432					
16. 29	17. 15	12. 41	·1405					
16. 49	24. 0	12. 59	·1400					
17. 3	25. 0	13. 50	·1404					
17. 26	21. 45	13. 57	·1410					
17. 58	21. 30	14. 6	·1404					
18. 8	19. 40		***					
18. 33	23. 50	15. 57	·1407					
18. 36	23. 5	16. 35	·1390					
18. 57	25. 0	17. 15	·1409					
19. 12	20. 30	18. 0	·1388					
19. 28	22. 5	18. 38	·1396					
19. 55	19. 10	19. 7	·1382					
20. 15	20. 50	19. 27	·1388					
20. 33	18. 20	20. 10	·1383					
20. 49	20. 0	20. 25	·1370					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
June24	° ′ ″	June24		June24		June24		
h m		h m		h m		h m	°	°
1. 35	20. 24. 50	1. 21	·1382	7. 40	·03012	9. 0	60 ·7	62 ·6
1. 55	26. 0	1. 39	·1401	7. 50	·03025	10. 0	59 ·7	61 ·7
2. 16	23. 45	1. 43	·1385	8. 8	·02996	11. 30	59 ·6	61 ·5
2. 48	25. 50	2. 12	·1406	10. 45	·02970	12. 15	60 ·1	61 ·7
3. 3	24. 20	2. 29	·1390	11. 39	·02930	21. 0	61 ·0	62 ·4
3. 36	24. 30	2. 53	·1414	14. 32	·02920	22. 0	61 ·0	62 ·4
3. 50	25. 30	3. 10	·1392	16. 52	·02909	23. 0	61 ·2	62 ·7
4. 45	23. 0		***	23. 59	·02940			
5. 0	23. 0	4. 21	·1392					
5. 28	16. 30		***					
6. 15	21. 30	7. 17	·1426					
6. 48	21. 50	7. 32	·1412					
7. 28	21. 0	7. 50	·1444					
7. 40	14. 20	8. 8	·1421					
7. 50	19. 0	8. 36	·1414					
8. 1	20. 0	8. 41	·1425					
8. 15	18. 20	8. 54	·1406					
8. 30	20. 0		***					
8. 50	19. 20	10. 7	·1400					
9. 8	16. 45	10. 40	·1406					
9. 40	18. 0	10. 49	·1417					
9. 55	21. 5	11. 9	·1402					
10. 30	18. 50	11. 10	·1404					
11. 5	25. 0	11. 17	·1401					
11. 18	25. 15	11. 24	·1407					
11. 52	21. 25	12. 15	·1409					
12. 30	19. 10	12. 26	·1404					
12. 58	19. 10	12. 50	·1404					
13. 40	15. 5	13. 0	·1407					
14. 8	17. 30	13. 35	·1399					
14. 48	15. 45	13. 55	·1397					
14. 58	16. 50	14. 20	·1411					
15. 10	19. 0	14. 30	·1398					
15. 40	19. 0	14. 41	·1400					
15. 58	17. 45	15. 6	·1387					
16. 7	18. 15	15. 29	·1394					
16. 30	16. 0	15. 49	·1394					
16. 43	16. 40	16. 7	·1399					
17. 14	14. 30	16. 30	·1405					
17. 42	13. 30	16. 58	·1398					
17. 55	14. 50	17. 8	·1401					
18. 8	14. 40	17. 31	·1399					
18. 15	15. 35	17. 59	·1394					
18. 36	14. 30	18. 55	·1397					
18. 50	15. 5	20. 6	·1397					
19. 2	14. 30	21. 9	·1389					
19. 10	15. 15	21. 57	·1374					
19. 30	14. 50	22. 47	·1377					
21. 10	19. 40	23. 45	·1389					
22. 50	25. 40	23. 59	·1394					
23. 59	26. 10							
June25		June25		June25		June25		
0. 0	20. 26. 10	0. 0	·1394	0. 0	·02940	0. 0	61 ·4	63 ·2
1. 23	28. 15	0. 42	·1400	6. 2	·03036	1. 0	61 ·5	63 ·4
1. 42	27. 0	0. 57	·1407	9. 7	·03050	2. 0	61 ·6	63 ·6
1. 59	28. 0	1. 45	·1401	11. 45	·02946	3. 0	61 ·7	64 ·0
2. 22	25. 15	2. 7	·1410	11. 58	·02953	9. 0	61 ·0	61 ·8

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
June25	° ′ ″	June25		June25		June25		
h m		h m		h m		h m	°	°
2. 32	20. 26. 30	2. 20	·1403	13. 6	·02878	21. 0	59 ·9	61 ·2
3. 42	22. 15	2. 39	·1415	15. 30	·02820	22. 0	60 ·0	61 ·6
4. 55	22. 50	2. 59	·1401	16. 42	·02818	23. 0	60 ·4	62 ·2
5. 5	22. 0	3. 35	·1400	22. 10	·02858			
5. 43	21. 5	3. 44	·1406	23. 59	·02870			
6. 5	21. 30	4. 37	·1410					
7. 33	20. 55	5. 38	·1403					
7. 58	18. 10	6. 3	·1408					
8. 13	19. 5	7. 9	·1404					
8. 31	19. 5	7. 24	·1408					
8. 44	20. 35	7. 36	·1401					
10. 8	18. 20	7. 58	·1406					
11. 10	19. 15	8. 9	·1404					
11. 53	5. 55	8. 24	·1408					
12. 1	10. 40	9. 29	·1400					
12. 15	10. 30	10. 39	·1403					
12. 45	14. 5	11. 9	·1412					
13. 6	10. 0	11. 36	·1409					
13. 37	10. 30	11. 47	·1402					
14. 0	9. 0	12. 20	·1419					
14. 25	9. 10	12. 35	·1413					
15. 6	19. 0	12. 44	·1416					
15. 41	13. 30	12. 55	·1413					
16. 33	12. 0	13. 8	·1403					
17. 5	14. 20	14. 15	·1412					
17. 31	13. 45	14. 30	·1406					
17. 45	14. 35	14. 45	·1392					
17. 56	13. 25	15. 15	·1410					
18. 3	15. 20	15. 24	·1419					
18. 10	14. 5	15. 25	·1419					
18. 18	16. 30	16. 18	·1415					
18. 38	17. 0	16. 50	·1396					
18. 41	14. 30	17. 15	·1391					
19. 6	15. 30	17. 58	·1396					
19. 11	18. 0	18. 34	·1393					
19. 19	15. 50	18. 49	·1385					
22. 35	24. 30	19. 8	·1392					
22. 48	24. 10	19. 15	·1387					
23. 7	24. 50	21. 58	·1379					
23. 59	23. 55	22. 27	·1383					
		23. 17	·1375					
		23. 59	·1384					
June26		June26		June26		June26		
0. 0	20. 23. 55	0. 0	·1384	0. 0	·02870	0. 0	60 ·9	62 ·9
1. 43	23. 0	0. 38	·1398	3. 45	·02965	1. 0	61 ·0	63 ·1
3. 10	21. 15	1. 15	·1405	6. 0	·02980	2. 0	61 ·0	63 ·4
3. 37	22. 0	1. 27	·1403	7. 57	·03012	3. 0	61 ·2	63 ·8
4. 3	20. 50	1. 49	·1413	9. 42	·03015	9. 0	61 ·7	64 ·2
4. 46	21. 35	2. 9	·1409	11. 48	·02920	9. 40	59 ·4	61 ·3
4. 56	20. 50	2. 59	·1410	15. 5	·02882	21. 0	59 ·6	61 ·1
6. 3	21. 0	3. 20	·1405	17. 29	·02840	22. 0	59 ·9	61 ·4
6. 35	18. 50	3. 39	·1413	19. 48	·02840	23. 0	60 ·3	62 ·1
7. 52	20. 30	3. 55	·1407	22. 45	·02871			
7. 58	19. 35	4. 5	·1409	23. 59	·02870			
8. 25	19. 40	4. 15	·1404					
8. 48	20. 40	4. 25	·1408					
9. 47	18. 0	4. 35	·1403					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
June 26	° ′ ″	June 26						
h m		h m		h m		h m	°	°
10. 2	20. 14. 5	4. 47	·1414					
10. 14	16. 50	5. 7	·1404					
10. 45	10. 25	5. 40	·1409					
10. 52	10. 10	5. 55	·1406					
11. 43	15. 35	6. 9	·1410					
12. 2	15. 20	6. 24	·1407					
12. 12	17. 0	6. 43	·1415					
13. 58	18. 40	7. 5	·1407					
14. 17	18. 0	7. 24	·1411					
14. 38	19. 0	8. 45	·1406					
14. 52	18. 15	9. 10	·1412					
15. 17	19. 5	9. 50	·1404					
15. 42	18. 30	10. 9	·1414					
16. 0	19. 50	10. 22	·1409					
16. 30	19. 10	10. 57	·1416					
17. 20	15. 30	11. 50	·1399					
17. 40	16. 0	12. 49	·1400					
17. 51	17. 0	14. 4	·1407					
18. 53	16. 0	16. 19	·1404					
19. 23	17. 0	17. 9	·1409					
19. 38	16. 0	17. 51	·1403					
20. 15	16. 50	18. 29	·1407					
20. 26	16. 30	21. 24	·1385					
22. 59	21. 20	22. 55	·1392					
23. 57	21. 15	23. 59	·1391					
23. 59	21. 25							
June 27		June 27		June 27		June 27		
0. 0	20. 21. 25	0. 0	·1391	0. 0	·02870	0. 0	60 ·6	62 ·5
0. 13	22. 35	0. 15	·1398	4. 48	·02980	1. 0	60 ·6	62 ·9
1. 41	24. 30	0. 50	·1394	9. 29	·03018	2. 0	60 ·9	63 ·4
2. 3	23. 0	1. 9	·1398	10. 39	·02980	3. 0	61 ·0	63 ·8
2. 27	23. 15	1. 37	·1396	13. 14	·02952	9. 0	62 ·6	64 ·8
3. 2	22. 0	1. 51	·1390	16. 31	·02970	10. 15	60 ·4	61 ·6
4. 20	21. 15	2. 9	·1390	17. 40	·02960	21. 0	62 ·1	63 ·3
4. 33	20. 30	2. 38	·1397	22. 0	·02950	22. 0	61 ·7	62 ·9
4. 53	20. 50	3. 5	·1395	23. 59	·02970	23. 0	62 ·0	63 ·6
5. 34	20. 0	4. 9	·1403					
6. 28	20. 0	4. 30	·1400					
7. 50	19. 0	5. 27	·1403					
9. 45	20. 0	5. 59	·1408					
10. 17	20. 35	6. 44	·1403					
11. 10	19. 5	7. 0	·1408					
11. 33	22. 0	7. 18	·1409					
12. 8	19. 0	7. 28	·1406					
12. 44	19. 0	9. 4	·1401					
13. 5	20. 5	9. 19	·1396					
13. 30	19. 15		***					
13. 40	19. 55	11. 0	·1400					
14. 19	17. 50	11. 29	·1408					
16. 35	17. 25	12. 5	·1400					
16. 46	16. 20	12. 16	·1405					
17. 11	15. 30	12. 59	·1397					
19. 9	15. 0	14. 9	·1400					
19. 20	16. 0	17. 22	·1402					
19. 43	15. 15	18. 51	·1397					
21. 27	19. 0		***					
22. 55	23. 30	21. 42	·1393					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
June 27	° ′ ″	June 27						
h m		h m		h m		h m	°	°
23. 23	20. 24. 0	23. 59	·1402					
23. 59	24. 10							
June 28		June 28		June 28		June 28		
0. 0	20. 24. 10	0. 0	·1402	0. 0	·02970	0. 0	62 ·2	64 ·1
1. 28	24. 35	2. 50	·1407	1. 43	·03010	1. 0	62 ·2	64 ·3
5. 10	19. 20	3. 12	·1399	5. 16	·03015	2. 0	62 ·2	64 ·3
7. 8	20. 0		***	12. 6	·02895	3. 0	62 ·3	64 ·4
10. 54	19. 5	9. 5	·1409	18. 7	·02720	6. 15	61 ·3	62 ·8
11. 24	17. 30	11. 19	·1406	22. 40	·02734	7. 0	60 ·2	62 ·1
12. 3	19. 35	12. 5	·1412	23. 59	·02762	9. 0	59 ·0	60 ·9
12. 58	14. 25	12. 49	·1410			21. 0	58 ·8	59 ·8
14. 51	16. 5	13. 20	·1406			22. 0	58 ·9	60 ·0
17. 15	12. 50	16. 24	·1409			23. 0	59 ·2	60 ·5
18. 40	13. 30	18. 30	·1409					
21. 47	17. 50	20. 59	·1397					
22. 57	20. 50	22. 47	·1400					
23. 59	23. 20	23. 59	·1404					
June 29		June 29		June 29		June 29		
0. 0	20. 23. 20	0. 0	·1404	0. 0	·02762	0. 0	59 ·8	61 ·4
1. 18	24. 40	2. 10	·1402	4. 51	·02877	1. 0	60 ·0	61 ·7
5. 59	18. 40	4. 25	·1413	9. 3	·02920	2. 0	60 ·1	61 ·9
6. 55	20. 0	4. 36	·1408	12. 15	·02924	3. 0	60 ·8	62 ·1
13. 33	19. 0	5. 19	·1416	18. 21	·02856	8. 37	..	63 ·9
15. 9	16. 0	5. 57	·1413	22. 30	·02870	9. 0	61 ·5	62 ·7
17. 35	15. 0	6. 49	·1422	23. 59	·02873	9. 35	..	61 ·6
19. 44	15. 40	9. 41	·1410			21. 30	60 ·6	62 ·2
21. 5	18. 0	13. 13	·1409					
22. 43	25. 0	13. 55	·1413					
23. 16	25. 30	15. 49	·1405					
23. 59	24. 40	16. 50	·1409					
		21. 10	·1395					
		23. 59	·1407					
June 30		June 30		June 30		June 30		
0. 0	20. 24. 40	0. 0	·1407	0. 0	·02873	0. 30	61 ·6	64 ·0
0. 39	24. 0	0. 48	·1414	5. 0	·02980	7. 0	62 ·2	64 ·9
1. 20	25. 0	1. 50	·1410	7. 2	·02989	9. 0	62 ·6	65 ·4
2. 4	24. 30	2. 47	·1417	10. 5	·03020	10. 0	62 ·8	64 ·1
3. 3	19. 55	3. 38	·1413	18. 57	·02930	10. 30	..	63 ·3
8. 10	18. 35	8. 40	·1416	22. 0	·02923	21. 0	62 ·0	63 ·4
10. 30	19. 0	10. 9	·1408	23. 59	·02950	22. 0	62 ·0	63 ·8
10. 55	18. 20	10. 38	·1412			23. 0	62 ·2	64 ·3
12. 10	19. 25	12. 47	·1413					
12. 54	17. 45	13. 28	·1409					
13. 34	18. 10	13. 56	·1413					
13. 59	17. 5	14. 17	·1410					
14. 15	18. 0	14. 38	·1413					
14. 50	15. 10	15. 33	·1409					
15. 20	15. 40	17. 5	·1410					
15. 47	14. 45	21. 13	·1385					
16. 47	16. 45	23. 44	·1392					
19. 26	14. 5	23. 59	·1393					
20. 13	14. 45							
21. 38	19. 30							
22. 19	20. 5							
23. 59	24. 15							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
July 8		July 8		July 8		July 8		
h m	° ′ ″	h m		h m		h m	°	°
3. 45	20. 24. 0	3. 36	·1408	15. 55	·02850	9. 0	60·4	63·1
7. 21	21. 30	4. 18	·1415	22. 12	·02853	10. 20	59·9	61·8
9. 9	20. 30	4. 29	·1410	23. 59	·02880	11. 0	60·8	62·5
9. 29	19. 10	4. 47	·1413			21. 0	60·7	62·1
11. 45	19. 0	5. 9	·1410			22. 0	60·9	62·5
14. 25	18. 20	5. 37	·1417			23. 0	61·2	63·1
15. 20	22. 40	7. 41	·1420					
16. 6	18. 20	7. 54	·1416					
16. 36	18. 40	8. 4	·1420					
17. 5	17. 5	9. 23	·1412					
18. 3	16. 20	10. 56	·1416					
19. 10	17. 40	12. 17	·1412					
20. 36	16. 40	13. 33	·1413					
23. 9	21. 10	15. 4	·1408					
23. 59	21. 35	15. 49	·1410					
		16. 21	·1407					
		17. 5	·1410					
		18. 55	·1405					
		20. 41	·1406					
		22. 53	·1395					
		23. 59	·1396					
July 9		July 9		July 9		July 9		
0. 0	20. 21. 35	0. 0	·1396	0. 0	·02880	0. 0	61·5	63·3
0. 58	23. 5	2. 55	·1408	1. 20	·02885	1. 0	61·6	63·9
2. 39	23. 35	4. 40	·1408	4. 29	·02950	2. 0	61·8	64·2
4. 20	21. 20	5. 33	·1414	6. 16	·02959	3. 0	62·1	64·3
8. 7	20. 45	6. 40	·1418	8. 35	·02980	8. 0	62·2	65·0
8. 17	20. 0	11. 31	·1420	9. 30	·02940	9. 0	60·6	62·7
10. 29	20. 0	11. 49	·1418	15. 20	·02845	21. 0	60·9	62·1
10. 45	20. 20	12. 35	·1420	21. 0	·02814	22. 0	60·9	62·3
11. 50	19. 0	12. 49	·1417	22. 30	·02829	23. 0	61·4	62·9
12. 47	19. 0	13. 14	·1421	23. 59	·02860			
13. 16	20. 0	13. 57	·1412					
13. 54	17. 20	14. 9	·1416					
14. 28	18. 30	14. 27	·1413					
14. 46	17. 40	16. 53	·1419					
15. 5	18. 35	17. 39	·1414					
15. 32	17. 40	18. 11	·1418					
16. 3	18. 0	19. 34	·1408					
16. 21	17. 5	20. 8	·1410					
16. 34	18. 0	21. 6	·1406					
17. 0	17. 50	22. 0	·1402					
17. 25:	16. 50	22. 45	·1409					
17. 55	18. 0	22. 55	·1405					
18. 53	18. 0	23. 50	·1410					
18. 59	17. 30	23. 59	·1408					
22. 19	19. 30							
22. 59	21. 40							
23. 9	21. 10							
23. 59	24. 0							
July 10		July 10		July 10		July 10		
0. 0	20. 24. 0	0. 0	·1408	0. 0	·02860	0. 0	61·6	63·3
0. 45	24. 30	1. 7	·1407	4. 18	·02950	1. 0	61·7	63·8
3. 0	22. 55	1. 59	·1413	9. 2	·02980	2. 0	61·8	64·0
4. 8	20. 40	2. 35	·1409	9. 37	·02940	3. 0	62·1	64·3

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
July 10		July 10		July 10		July 10		
h m	° ′ ″	h m		h m		h m	°	°
6. 32	20. 20. 30	3. 5	·1415	13. 3	·02890	9. 0	61·0	62·4
7. 14	21. 0	4. 8	·1409	17. 5	·02840	9. 15	60·6	62·0
7. 59	20. 30	4. 30	·1413	19. 50	·02820	21. 0	61·0	62·3
11. 30	20. 30	4. 55	·1413	21. 55	·02860	22. 0	61·2	62·8
12. 30	19. 30	5. 14	·1414	23. 59	·02870	23. 0	61·6	63·4
14. 47	19. 5	5. 49	·1411					
15. 25	19. 30	6. 24	·1416					
16. 28	17. 55	6. 49	·1414					
17. 14	17. 0	6. 58	·1420					
17. 32	17. 20	7. 33	·1420					
17. 45	16. 15	7. 49	·1412					
17. 59	17. 25	8. 44	·1410					
19. 7	17. 0	9. 19	·1403					
21. 9	18. 30	9. 39	·1406					
22. 10	21. 0	12. 38	·1404					
23. 59	25. 0	16. 59	·1408					
		19. 40	·1408					
		23. 59	·1400					
July 11		July 11		July 11		July 11		
0. 0	20. 25. 0	0. 0	·1400	0. 0	·02870	0. 0	61·6	63·6
0. 20	25. 20	0. 40	·1398	4. 59	·02956	1. 0	61·8	64·0
1. 35	23. 50	2. 9	·1412	7. 25	·02960	2. 0	61·7	64·1
2. 11	23. 55	3. 9	·1406	18. 5	·02890	3. 0	61·9	64·5
4. 15	20. 50	3. 57	·1412	19. 18	·02900	7. 0	62·3	65·2
5. 38	20. 5	5. 57	·1409	21. 10	·02892	7. 15	62·8	64·9
6. 38	20. 50	8. 45	·1418	23. 59	·02919	9. 0	62·2	64·0
11. 11	19. 15		***			10. 15	61·0	63·2
13. 10	20. 0	11. 56	·1409			21. 0	61·8	63·6
13. 52	19. 10	16. 35	·1414			22. 0	61·8	63·8
14. 23	19. 40	17. 19	·1410			23. 0	62·1	64·1
14. 58	18. 40	18. 24	·1411					
15. 33	19. 0	18. 37	·1408					
16. 13	18. 0	18. 48	·1410					
17. 23	14. 50	19. 4	·1402					
18. 30	14. 0	19. 44	·1400					
18. 40	13. 25	20. 10	·1403					
19. 5	15. 20	22. 43	·1408					
19. 15	15. 0	23. 59	·1412					
19. 35	16. 0							
19. 45	15. 10							
20. 7	17. 20							
20. 17	16. 25							
21. 35	19. 20							
22. 8	19. 30							
23. 59	24. 40							
July 12		July 12		July 12		July 12		
0. 0	20. 24. 40	0. 0	·1412	0. 0	·02919	0. 0	62·3	64·4
1. 16	26. 15	0. 15	·1416	4. 0	·02960	1. 0	62·3	64·4
1. 31	27. 40	0. 48	·1399	7. 2	·02990	2. 0	62·4	64·6
2. 31	25. 30	1. 11	·1393	9. 27	·02985	3. 0	62·4	64·7
3. 7	24. 55	1. 30	·1403	12. 6	·02960	8. 35	..	65·1
3. 17	23. 40	2. 19	·1408	12. 52	·02902	9. 0	62·7	65·9
3. 27	24. 10	2. 28	·1404	15. 50	·02912	9. 30	..	62·9
3. 36	23. 30	3. 7	·1412	22. 39	·02888	21. 0	61·8	62·3
4. 34	23. 30	3. 17	·1407	23. 59	·02915	22. 0	61·3	62·6
5. 9	22. 20	3. 27	·1411			23. 0	61·9	63·3

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Readings of Thermometers. Of V.F. Magnet.
July 12		July 12						
h m	° ′ ″	h m		h m		h m	°	°
5. 17	20. 22. 30	3. 35	·1408					
6. 39	20. 30	4. 7	·1417					
7. 29	20. 0	4. 57	·1416					
7. 56	21. 0	5. 20	·1423					
9. 10	20. 50	5. 44	·1418					
9. 26	20. 0	5. 57	·1423					
10. 59	19. 55	6. 20	·1411					
11. 6	20. 40	6. 59	·1422					
11. 22	20. 0	7. 33	·1419					
11. 44	20. 50	7. 48	·1425					
12. 4	17. 20	8. 10	·1421					
12. 30	18. 0	9. 37	·1424					
13. 0	16. 0	10. 50	·1420					
13. 17	16. 40	11. 7	·1425					
13. 39	15. 0	11. 27	·1422					
14. 0	12. 55	11. 52	·1425					
14. 7	13. 30	12. 0	·1422					
14. 15	12. 40	12. 26	·1444					
14. 40	14. 40	13. 15	·1404					
14. 59	17. 0	13. 55	·1412					
15. 48	15. 25	14. 55	·1409					
16. 0	16. 45	15. 23	·1414					
16. 12	16. 0	15. 40	·1408					
16. 30	13. 5	15. 59	·1415					
16. 35	14. 5	16. 35	·1416					
16. 42	13. 10	16. 54	·1408					
17. 16	14. 40	17. 59	·1410					
17. 45	13. 0	20. 27	·1400					
18. 25	14. 20		***					
18. 33	13. 40	22. 44	·1413					
19. 57	15. 25	23. 0	·1409					
20. 6	16. 20	23. 14	·1404					
20. 44	16. 0	23. 31	·1407					
22. 53	21. 30	23. 59	·1395					
23. 59	24. 0							
July 13		July 13		July 13		July 13		
0. 0	20. 24. 0	0. 0	·1395	0. 0	·02915	0. 0	62 ·2	63 ·6
1. 9	29. 0	0. 47	·1409	0. 30	·02930	1. 0	62 ·2	63 ·9
1. 32	29. 30	1. 19	·1400	3. 3	·02950	2. 0	62 ·2	64 ·0
1. 48	28. 10	1. 30	·1405	6. 16	·02993	3. 0	62 ·3	64 ·2
1. 58	28. 30	1. 38	·1401	8. 4	·02987	7. 30	62 ·8	64 ·6
2. 24	26. 20	1. 57	·1414	9. 48	·02945	9. 0	61 ·6	62 ·1
2. 35	26. 40	2. 18	·1409	17. 36	·02890	21. 40	62 ·1	63 ·2
3. 9	24. 15	2. 24	·1414	19. 35	·02915			
4. 20	24. 0	2. 59	·1404	22. 25	·02900			
4. 36	23. 0	3. 19	·1413	23. 59	·02910			
4. 56	22. 55	3. 45	·1403					
5. 10	23. 40	4. 10	·1406					
5. 58	20. 0	4. 25	·1399					
6. 25	20. 20	4. 34	·1407					
6. 53	19. 30	4. 40	·1401					
7. 24	19. 10	5. 3	·1416					
9. 20	20. 0	5. 17	·1410					
9. 38	19. 35	5. 51	·1401					
12. 18	18. 55		***					
13. 0	22. 0	7. 59	·1416					
13. 46	20. 35		***					

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July 13		July 13						
h m	° ′ ″	h m		h m		h m	°	°
14. 23	20. 21. 20	10. 8	·1413					
14. 37	20. 50		***					
14. 55	20. 50	12. 57	·1417					
15. 32	17. 5	14. 15	·1409					
15. 50:	17. 0	15. 25:	·1416					
16. 30	24. 20	16. 15	·1396					
16. 57	21. 0	17. 10	·1408					
17. 59	17. 50	18. 31	·1408					
18. 15	18. 0	20. 35	·1389					
18. 45	16. 20	21. 43	·1386					
19. 36	15. 5	22. 24	·1392					
20. 36	16. 50	23. 59	·1396					
22. 46	22. 50							
23. 59	23. 30							
July 14		July 14		July 14		July 14		
0. 0	20. 23. 30	0. 0	·1396	0. 0	·02910	0. 0	62 ·4	64 ·0
1. 10	25. 0	0. 50	·1395	5. 13	·02980	1. 0	62 ·4	64 ·1
4. 2	23. 0	1. 20	·1402	8. 55	·02970	8. 30	62 ·6	64 ·5
4. 17	22. 10	1. 56	·1399	9. 15	·02935	9. 0	60 ·7	61 ·7
4. 29	22. 20	2. 10	·1398	12. 15	·02890	9. 25	61 ·1	62 ·1
4. 38	21. 20	2. 35	·1406	19. 56	·02870	21. 0	61 ·1	61 ·6
4. 55	21. 20	2. 59	·1400	20. 33	·02858	22. 0	61 ·6	62 ·0
5. 7	20. 35	4. 5	·1408	22. 26	·02850	23. 0	61 ·4	62 ·3
6. 18	20. 20	4. 48	·1394		(†)			
7. 4	19. 25	5. 17	·1407					
9. 16	18. 10	7. 42	·1416					
9. 36	19. 0	8. 29	·1415					
10. 20	18. 0	9. 0	·1412					
11. 48	21. 15	9. 48	·1415					
12. 0	20. 20	13. 39	·1410					
13. 18	19. 20	20. 9	·1412					
15. 37	19. 30	21. 5	·1406					
17. 42	16. 30	23. 7	·1410					
17. 52	17. 50	23. 30	·1400					
	***	23. 59	·1413					
18. 20	16. 10							
18. 29	17. 50							
	***							
19. 24	16. 20							
20. 5	17. 25							
20. 14	17. 0							
20. 38	19. 0							
20. 46	18. 10							
21. 26	21. 40							
21. 46	22. 0							
23. 11	26. 55							
23. 20	26. 30							
23. 49	27. 50							
23. 59	26. 50							
July 15		July 15		July 15		July 15		
0. 0	20. 26. 50	0. 0	·1413	1. 0	·02870*	0. 0	61 ·4	62 ·4
0. 23	25. 0	0. 15	·1419	3. 0	·02886*	1. 0	60 ·8	61 ·4
1. 23	24. 30		(†)	9. 0	·02857*	2. 0	61 ·2	61 ·5
1. 35	25. 5	1. 0	·1421*	21. 0	·02871*	3. 0	60 ·8	60 ·8
2. 6	24. 0	3. 0	·1394*			3. 50	61 ·2	61 ·0
2. 51	24. 45	3. 27	·1410			8. 15	60 ·6	60 ·4

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m	° ′ ″	July 20 h m		h m		h m	°	°
		22. 12	·1394					
		23. 59	·1394					
July 21		July 21		July 21		July 21		
0. 0	20. 23. 5	0. 0	·1394	0. 0	·02903	0. 0	62·8	64·7
1. 15	22. 55	0. 52	·1404	5. 43	·02993	9. 20	63·2	65·4
1. 46	24. 0	1. 0	·1413	5. 48	·02980	9. 40	62·7	64·1
3. 44	23. 10	1. 12	·1412	5. 55	·03005	10. 25	61·6	63·1
3. 53	24. 0	1. 25	·1416	6. 40	·03017	21. 0	62·7	63·4
4. 6	22. 50	2. 10	·1413	6. 50	·03040	22. 0	62·4	63·8
4. 50	23. 20	2. 44	·1420	6. 53	·03029	23. 0	62·8	64·2
5. 3	22. 30	2. 58	·1415	7. 5	·03060			
5. 13	23. 40	3. 44	·1418	7. 28	·03030			
6. 29	21. 55	5. 24	·1442	10. 27	·02995			
6. 53	5. 45	5. 44	·1438	10. 39	·02980			
7. 25	19. 15	5. 57	·1441	11. 5	·02978			
7. 37	18. 40	6. 22	·1402	11. 29	·02940			
8. 5	21. 5	6. 34	·1406	11. 46	·02875			
9. 37	19. 0	6. 49	·1434	12. 58	·02916			
10. 7	17. 0	7. 20	·1408	17. 19	·02898			
10. 27	18. 30	7. 50	·1418	22. 20	·02906			
10. 40	14. 50	8. 15	·1412	23. 59	·02925			
11. 2	11. 55	8. 40	·1419					
11. 10	15. 0	9. 18	·1419					
11. 20	12. 20	9. 40	·1420					
11. 30	16. 55	10. 5	·1410					
11. 59	10. 0	10. 29	·1398					
12. 39	15. 45	10. 44	·1399					
12. 50	14. 50	11. 18	·1450					
13. 4	16. 20	11. 49	·1402					
13. 26	14. 20	12. 25	·1403					
13. 39	15. 0	12. 39	·1397					
14. 3	15. 0	12. 57	·1402					
15. 5	16. 40	13. 50	·1408					
16. 1	14. 45	14. 36	·1398					
16. 19	14. 40	14. 59	·1410					
16. 33	13. 45	16. 37	·1406					
16. 50	15. 0	16. 53	·1411					
17. 20	12. 45	17. 47	·1402					
17. 29	13. 20	18. 30	·1398					
17. 39	12. 10	19. 17	·1401					
17. 59	14. 45	22. 0	·1385					
18. 10	14. 5	23. 59	·1392					
18. 24	14. 40							
18. 35	13. 50							
19. 32	15. 50							
19. 45	15. 10							
23. 15	21. 0							
23. 59	24. 30							
July 22		July 22		July 22		July 22		
0. 0	20. 24. 30	0. 0	·1392	0. 0	·02925	0. 0	62·8	64·5
0. 34	25. 30	1. 19	·1393	4. 33	·02983	1. 0	62·8	64·7
1. 33	25. 40	1. 39	·1396	6. 37	·02990	2. 0	62·9	64·9
1. 55	27. 0	2. 2	·1405	8. 55	·02990	3. 0	62·9	65·1
2. 42	25. 20	2. 25	·1398	9. 55	·02950	8. 15	63·1	65·2
7. 0	20. 25	3. 48	·1406	10. 41	·02960	9. 0	62·6	63·6
7. 30	19. 0	5. 15	·1403	13. 43	·02926	9. 15	62·0	63·0

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
July 22	° ′ ″	July 22		July 22		July 22	°	°
8. 48	20. 19. 40	5. 30	·1408	14. 56	·02877	21. 0	62·2	63·4
9. 8	21. 0	6. 22	·1404	16. 16	·02890	22. 0	62·5	63·7
9. 30	22. 40	6. 59	·1408	18. 1	·02910	23. 0	62·6	64·2
10. 21	17. 0		***	19. 54	·02894			
10. 30	17. 50	9. 7	·1405	23. 59	·02900			
11. 5	16. 0	9. 23	·1418					
11. 46	17. 0	9. 38	·1412					
11. 59	19. 0	9. 45	·1413					
12. 15	17. 20	10. 8	·1407					
12. 21	18. 0	10. 35	·1406					
12. 37	16. 45	10. 45	·1412					
13. 10	19. 30	11. 58	·1403					
13. 15	19. 20	12. 15	·1407					
14. 5	24. 40	12. 21	·1402					
15. 15	15. 55	12. 59	·1404					
18. 27	13. 50	13. 5	·1408					
19. 30	14. 0	13. 10	·1404					
19. 46	13. 10	13. 26	·1405					
20. 22	15. 5	14. 14	·1406					
20. 44	13. 50	14. 45	·1409					
20. 54	16. 0	16. 15	·1403					
21. 9	15. 30	17. 13	·1407					
21. 27	16. 30	18. 7	·1402					
21. 40	15. 30	18. 54	·1407					
22. 50	19. 50		***					
23. 9	22. 0	21. 35	·1388					
23. 26	22. 0	21. 50	·1394					
23. 59	23. 30	22. 29	·1384					
		23. 5	·1386					
		23. 20	·1394					
		23. 30	·1390					
		23. 59	·1396					
July 23		July 23		July 23		July 23		
0. 0	20. 23. 30	0. 0	·1396	0. 0	·02900	0. 0	62·8	64·6
1. 19	25. 0	0. 39	·1398	6. 10	·02992	1. 0	61·9	64·7
2. 39	24. 0	0. 50	·1403	8. 29	·02992	2. 0	62·8	64·8
3. 27	24. 20	1. 31	·1403	9. 5	·02960	3. 0	63·0	65·0
3. 38	23. 30	2. 9	·1410	15. 10	·02865	9. 0	62·0	63·0
3. 55	23. 30	2. 24	·1412	20. 3	·02823	21. 0	61·6	62·2
4. 2	24. 50	2. 41	·1408	22. 25	·02831	22. 0	61·6	62·8
4. 18	23. 30	3. 7	·1416	23. 59	·02850	23. 0	61·8	63·2
4. 36	24. 0	3. 19	·1414					
4. 46	23. 0	3. 37	·1417					
5. 17	21. 30	3. 56	·1407					
5. 48	22. 20	4. 15	·1422					
6. 53	20. 20	4. 39	·1408					
7. 19	21. 0	4. 48	·1411					
8. 18	20. 30	5. 6	·1399					
8. 30	17. 25	5. 57	·1420					
8. 40	19. 15	6. 19	·1404					
9. 2	16. 30	6. 35	·1408					
9. 20	18. 30	6. 38	·1404					
9. 46	17. 10	7. 27	·1411					
10. 12	18. 30	7. 33	·1408					
10. 58	16. 0	8. 19	·1413					
11. 25	17. 0	8. 30	·1409					
11. 38	15. 50	8. 49	·1432					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol ⁚ attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
July 23	° ′ ″	July 23		h m		h m	°	°
h m		h m						
11. 46	20. 16. 10	9. 14	·1418					
12. 5	15. 30	9. 46	·1409					
12. 18	18. 40	10. 19	·1412					
12. 45	19. 40	11. 30	·1404					
13. 18	17. 45	11. 45	·1407					
13. 35	18. 35	12. 17	·1402					
13. 50	17. 30	12. 49	·1409					
14. 13	18. 20	13. 6	·1406					
14. 33	17. 30	13. 46	·1410					
14. 42	18. 50	15. 0	·1400					
14. 52	18. 0	17. 35	·1406					
15. 8	19. 55	18. 36	·1395					
15. 26	19. 30	19. 29	·1401					
15. 30	20. 0	20. 7	·1398					
16. 16	18. 0	22. 54	·1390					
16. 40	18. 20	23. 55	·1398					
17. 0	16. 30	23. 59	·1395					
19. 23	15. 0							
20. 20	16. 0							
22. 30	20. 20							
22. 45	21. 40							
22. 56	20. 40							
23. 9	21. 10							
23. 59	23. 30							
July 24		July 24		July 24		July 24		
0. 0	20. 23. 30	0. 0	·1395	0. 0	·02850	0. 0	62 ·0	63 ·5
2. 38	25. 5	1. 30	·1400	5. 48	·02916	1. 0	62 ·0	63 ·7
3. 0	24. 30	2. 24	·1408	8. 9	·02905	2. 0	62 ·2	64 ·0
3. 30	24. 40	3. 13	·1404	8. 55	·02869	3. 0	62 ·1	64 ·0
4. 22	22. 30	4. 16	·1409	11. 35	·02830	7. 45	62 ·4	64 ·5
4. 33	22. 40	4. 36	·1415	20. 4	·02748	9. 0	60 ·7	61 ·7
5. 20	20. 0	5. 23	·1418	22. 35	·02753	11. 0	59 ·4	61 ·3
5. 50	20. 50	5. 47	·1414	23. 59	·02793	21. 0	60 ·6	61 ·6
6. 59	20. 30	6. 35	·1416			22. 0	60 ·7	62 ·1
7. 12	20. 0	7. 7	·1409			23. 0	61 ·2	62 ·8
7. 33	20. 20	7. 21	·1412					
8. 11	19. 50	7. 55	·1406					
8. 56	20. 0	8. 19	·1411					
11. 12	18. 40	10. 55	·1409					
11. 30	19. 40	11. 18	·1414					
12. 2	18. 0	12. 27	·1409					
12. 22	18. 40	13. 23	·1413					
12. 46	18. 0	15. 0	·1409					
13. 10	18. 45	17. 54	·1411					
15. 53	18. 0	18. 34	·1405					
16. 29	17. 5	19. 57	·1400					
16. 44	17. 50	21. 28	·1398					
17. 47	16. 50	22. 45	·1403					
18. 12	17. 30	23. 59	·1395					
18. 38	16. 55							
18. 55	18. 0							
19. 4	17. 40							
23. 59	22. 0							
July 25		July 25		July 25		July 25		
0. 0	20. 22. 0	0. 0	·1395	0. 0	·02793	0. 0	61 ·4	63 ·2
0. 9	23. 0	0. 14	·1399	8. 44	·02892	1. 0	61 ·4	63 ·6

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
July 25	° ′ ″	July 25		July 25		July 25	°	°
h m		h m		h m		h m		
0. 22	20. 22. 30	0. 29	·1396	9. 39	·02860	2. 0	61 ·6	63 ·8
2. 3	24. 15	1. 17	·1406	11. 56	·02858	3. 0	61 ·8	64 ·0
3. 59	23. 25	1. 50	·1406	22. 50	·02788	8. 10	62 ·1	64 ·3
5. 12	21. 30	2. 4	·1410	23. 59	·02785	9. 0	61 ·7	63 ·1
7. 44	21. 20	2. 14	·1407			9. 25	61 ·5	62 ·3
8. 28	20. 20	3. 0	·1413			21. 0	60 ·4	62 ·0
9. 9	18. 0	3. 43	·1409			22. 0	60 ·4	61 ·8
9. 25	15. 50	4. 6	·1412			23. 0	61 ·0	62 ·4
10. 0	18. 10	4. 57	·1408					
10. 16	17. 40	6. 58	·1414					
10. 29	18. 20	7. 30	·1419					
10. 54	17. 30	8. 34	·1416					
11. 1	18. 10	8. 48	·1425					
11. 30	17. 5	9. 27	·1419					
12. 1	18. 30	9. 44	·1411					
12. 26	17. 40	9. 57	·1413					
12. 32	18. 0	10. 9	·1409					
12. 48	17. 0	10. 29	·1410					
13. 37	19. 20	10. 43	·1404					
13. 47	18. 30	11. 2	·1409					
13. 57	19. 0	11. 28	·1406					
14. 10	18. 10	13. 42	·1411					
14. 57:	21. 20	14. 29	·1409					
15. 34	18. 50	15. 2	·1414					
16. 7	18. 0	17. 36	·1413					
16. 21	18. 10	21. 24	·1407					
17. 0	16. 50	22. 33	·1397					
17. 5	18. 0	23. 24	·1403					
17. 19	16. 40		(†)					
18. 8	16. 30							
18. 51	17. 30							
19. 0	16. 55							
21. 20	16. 10							
21. 53	16. 40							
22. 18	16. 10							
23. 59	20. 0							
July 26		July 26		July 26		July 26		
0. 0	20. 20. 0		(†)	0. 0	·02785	0. 0	61 ·6	63 ·0
1. 57	22. 50	1. 0	·1415*	1. 7	·02763	1. 0	61 ·0	61 ·8
4. 35	21. 30	2. 48	·1420	5. 31	·02775	2. 0	59 ·8	61 ·2
4. 47	20. 50	4. 27	·1422	12. 18	·02757	3. 0	60 ·0	61 ·3
8. 5	19. 55	5. 27	·1426	17. 35	·02722	3. 40	60 ·3	61 ·3
10. 15	19. 25	6. 9	·1420	22. 44	·02669	8. 45	..	60 ·7
10. 25	20. 10	6. 47	·1426	23. 59	·02690	9. 0	59 ·2	60 ·4
10. 58	18. 30	10. 9	·1420			9. 15	..	60 ·4
11. 37	19. 20	10. 34	·1426			21. 0	59 ·3	60 ·4
12. 6	18. 20	10. 48	·1425			22. 0	59 ·1	60 ·3
12. 45	19. 0	11. 4	·1427			23. 0	59 ·8	61 ·0
13. 17	17. 55	12. 3	·1418					
16. 7	17. 55	17. 13	·1410					
17. 26	16. 30	17. 34	·1413					
17. 56	17. 30	17. 42	·1410					
18. 2	16. 40	19. 47	·1406					
18. 12	17. 0	21. 5	·1410					
19. 13	15. 25	22. 19	·1410					
21. 22	17. 25	22. 29	·1404					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Aug. 1	° ′ ″	Aug. 1		Aug. 1		Aug. 1	°	°
h m		h m		h m		h m		
0. 0	20. 25. 0	0. 0	·1396	0. 0	·02730	0. 0	60·4	61·7
1. 28	24. 20	0. 30	·1407	0. 15	·02739	1. 0	60·2	61·0
2. 15	25. 30	0. 40	·1400	1. 54	·02710	2. 0	60·1	60·9
2. 39	24. 30	2. 7	·1417	4. 55	·02745	3. 0	60·1	60·9
2. 58	25. 30	2. 57	·1400	5. 59	·02749	8. 20	..	60·5
3. 40	23. 30	3. 29	·1415	9. 53	·02703	9. 0	59·2	59·8
4. 2	24. 40	3. 59	·1419	17. 13	·02680	21. 0	59·4	60·0
5. 3	22. 50	4. 25	·1407	22. 35	·02610	22. 0	59·3	60·1
5. 12	21. 30	4. 50	·1414	23. 59	·02650	23. 0	59·7	60·4
6. 9	23. 0	5. 7	·1398					
6. 42	21. 40	5. 32	·1419					
9. 40	20. 40	5. 43	·1415					
10. 3	20. 50	6. 9	·1419					
10. 23	18. 25	6. 35	·1407					
11. 33	18. 35	7. 49	·1419					
11. 53	19. 50	8. 0	·1415					
12. 9	18. 30	9. 10	·1418					
12. 45	19. 50	9. 37	·1414					
13. 0	19. 10	9. 54	·1417					
13. 10	20. 0	10. 41	·1413					
13. 52	22. 20	10. 57	·1415					
15. 5	20. 0	11. 35	·1410					
15. 17	20. 40	11. 45	·1413					
16. 18	18. 15	13. 5	·1404					
17. 26	16. 30	13. 59	·1410					
17. 45	17. 50	14. 59	·1410					
19. 0	16. 50	16. 54	·1413					
19. 23	17. 0	17. 51	·1403					
19. 33	16. 25	19. 37	·1402					
19. 52	17. 30	20. 27	·1393					
19. 57	16. 30	20. 46	·1395					
20. 0	18. 5	21. 7	·1388					
20. 11	19. 0	22. 18	·1392					
20. 16	18. 0	22. 48	·1398					
21. 9	20. 50	23. 59	·1396					
21. 20	22. 30							
21. 39	22. 35							
23. 59	27. 50							
Aug. 2		Aug. 2		Aug. 2		Aug. 2		
0. 0	20. 27. 50	0. 0	·1396	0. 0	·02650	0. 0	59·8	60·6
1. 39	24. 25	0. 13	·1404	3. 24	·02680	1. 0	59·6	60·5
3. 35	21. 0	0. 29	·1399	9. 1	·02670	2. 0	59·7	60·6
3. 50	21. 30	1. 10	·1410	10. 50	·02650	3. 0	59·8	60·5
4. 9	20. 40	2. 26	·1413	15. 18	·02628	9. 0	59·2	60·1
5. 53	22. 0	3. 35	·1413	18. 10	·02620	10. 0	59·0	59·9
6. 56	21. 5	3. 58	·1420	22. 15	·02600	21. 0	59·1	59·8
9. 58	20. 50	4. 20	·1410	23. 59	·02600	22. 0	59·3	60·4
10. 21	21. 10	5. 39	·1419			23. 0	59·6	60·8
10. 53	19. 20	8. 6	·1412					
11. 12	21. 0	8. 49	·1418					
11. 48	19. 20	10. 4	·1412					
12. 4	22. 25	10. 30:	·1420					
12. 33	20. 10	11. 0	·1415					
13. 7	21. 10	11. 30	·1419					
14. 1	19. 30	11. 56	·1414					
14. 32	20. 55	12. 18	·1420					
15. 1	19. 30	12. 59	·1415					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
Aug. 2	° ′ ″	Aug. 2						
h m		h m		h m		h m		
15. 57	20. 20. 10	13. 20	·1419					
16. 27	19. 20	14. 28	·1413					
17. 0	20. 40	14. 54	·1418					
18. 10	17. 50	15. 11	·1415					
20. 30	17. 50	16. 26	·1416					
21. 45	19. 15	16. 48	·1412					
23. 18	24. 30	17. 40	·1412					
23. 59	27. 0	21. 35	·1392					
		23. 28	·1397					
		23. 59	·1401					
Aug. 3		Aug. 3		Aug. 3		Aug. 3		
0. 0	20. 27. 0	0. 0	·1401	0. 0	·02600	0. 0	59·8	61·1
0. 54	26. 30	0. 21	·1399	1. 5	·02620	1. 0	59·8	61·3
1. 22	26. 50	1. 18	·1406	5. 8	·02710	2. 0	60·0	61·6
4. 22	21. 30	2. 5	·1407	9. 10	·02708	3. 0	60·0	61·7
4. 28	20. 5	2. 30	·1415	10. 45	·02668	4. 0	60·4	62·0
6. 42	19. 50	3. 4	·1409	17. 26	·02665	4. 40	60·4	62·0
7. 26	20. 10	3. 13	·1413	22. 39	·02648	9. 0	60·0	61·0
7. 43	19. 20	4. 20	·1407	23. 59	·02665	11. 0	59·2	59·9
8. 45	20. 0	4. 56	·1415			21. 30	60·6	61·8
8. 59	16. 55	6. 24	·1415					
9. 27	20. 55	6. 45	·1422					
9. 58	19. 40	8. 34	·1411					
11. 40	20. 20	8. 57	·1413					
12. 44	20. 5	9. 9	·1424					
13. 5	21. 0	10. 24	·1414					
13. 54	20. 15	12. 18	·1409					
14. 9	20. 25	14. 7	·1415					
14. 18	22. 10	14. 57	·1412					
14. 56	22. 10	15. 39	·1414					
15. 15	20. 50	17. 0	·1407					
16. 3	19. 20	17. 55	·1413					
16. 50	19. 20	19. 0	·1407					
17. 58	15. 10	21. 39	·1402					
18. 47	16. 20	22. 24	·1394					
19. 24	16. 30	23. 59	·1398					
20. 18	18. 20							
21. 28	19. 35							
23. 59	25. 20							
Aug. 4		Aug. 4		Aug. 4		Aug. 4		
0. 0	20. 25. 20	0. 0	·1398	0. 0	·02665	0. 0	61·0	63·1
0. 35	26. 15	1. 17	·1404	6. 19	·02797	1. 0	60·9	63·0
1. 48	26. 20	2. 3	·1404	8. 59	·02800	4. 40	61·2	63·0
2. 46	25. 30	2. 42	·1411	10. 47	·02770	6. 45	61·4	63·0
4. 0	24. 0	3. 26	·1409	18. 35	·02690	9. 0	61·9	63·0
5. 42	20. 0	4. 9	·1415	22. 22	·02699	9. 20	61·4	62·3
8. 10	19. 20	4. 30:	·1406	23. 59	·02705	10. 15	61·0	61·3
9. 37	19. 40	5. 39	·1414			10. 40	60·8	61·1
10. 50	19. 0	5. 56	·1410			21. 0	60·8	61·0
14. 3	19. 15	7. 25	·1418			22. 0	60·8	62·2
14. 16	20. 0	13. 30	·1414			23. 0	61·2	62·3
14. 41	18. 25	15. 45	·1416					
17. 40	16. 0	16. 30	·1412					
18. 47	17. 10	17. 48	·1417					
19. 20	16. 30	18. 35	·1413					
19. 38	17. 20	19. 44	·1412					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Aug. 4		Aug. 4						
h m s	° ′ ″	h m s		h m		h m	°	°
20. 46	20. 17. 20	20. 54	·1397					
21. 51	19. 30	22. 36	·1392					
22. 40	22. 30	23. 59	·1402					
23. 59	26. 0							
Aug. 5		Aug. 5		Aug. 5		Aug. 5		
0. 0	20. 26. 0	0. 0	·1402	0. 0	·02705	0. 0	61 ·4	63 ·2
0. 17	26. 15	0. 39	·1412	3. 45	·02770	1. 0	61 ·4	63 ·4
0. 35	27. 55	0. 53	·1406	6. 35	·02804	2. 0	61 ·6	63 ·6
0. 58	26. 50	1. 28	·1412	8. 50	·02820	3. 0	61 ·6	63 ·6
1. 23	27. 45	1. 44	·1408	11. 15	·02752	8. 25	..	64 ·5
1. 39	26. 40	2. 42	·1413	15. 4	·02750	9. 0	61 ·0	62 ·2
2. 29	26. 20	2. 50	·1411	15. 48	·02730	9. 15	..	62 ·0
3. 48	24. 20	3. 19	·1419	18. 40	·02730	21. 0	60 ·8	61 ·8
4. 51	22. 0	3. 38	·1414	19. 11	·02706	22. 0	60 ·1	61 ·4
6. 39	21. 10	3. 50	·1416	19. 58	·02721	23. 0	60 ·6	61 ·9
7. 27	22. 0	4. 24	·1409	22. 38	·02690			
7. 47	21. 15	5. 19	·1420	23. 59	·02700			
8. 8	22. 0	5. 32	·1416					
8. 29	17. 20	6. 50	·1422					
9. 1	15. 20	7. 5	·1420					
9. 11	16. 25	7. 14	·1423					
9. 23	16. 0	7. 27	·1420					
9. 50	18. 45	7. 49	·1425					
10. 3	18. 10	8. 6	·1420					
10. 31	18. 35	8. 21	·1410					
10. 55	20. 20	8. 37	·1418					
11. 9	18. 0	8. 50	·1417					
11. 35	16. 10	8. 57	·1422					
12. 9	18. 30	9. 30	·1412					
12. 39	16. 55	9. 48	·1418					
13. 8	18. 0	10. 7	·1413					
13. 37	14. 0	10. 37	·1420					
13. 59	17. 0	10. 44	·1419					
14. 17	17. 20	10. 58	·1427					
14. 30	18. 55	11. 9	·1420					
14. 44	18. 40	11. 18	·1425					
15. 12	22. 50	11. 59	·1410					
16. 4	17. 25	12. 28	·1418					
16. 18	16. 55	12. 39	·1416					
16. 30	17. 15	13. 9	·1422					
16. 48	15. 40	13. 40	·1414					
17. 11	17. 15	13. 56	·1417					
17. 24	17. 10	14. 9	·1412					
17. 36	19. 30	14. 18	·1417					
18. 19	21. 30	14. 34	·1414					
18. 24	23. 5	15. 45	·1426					
18. 35	22. 50	16. 12	·1423					
18. 42	23. 10	16. 59	·1430					
18. 50	22. 30	17. 45	·1406					
19. 15	21. 55	18. 16	·1403					
19. 33	18. 35	18. 49	·1421					
20. 28	19. 30	19. 8	·1420					
21. 55	19. 5	19. 35	·1409					
23. 11	20. 30	19. 50	·1411					
23. 59	23. 10	21. 17	·1397					
		23. 48	·1404					
			(†)					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Aug. 6		Aug. 6		Aug. 6		Aug. 6		
h m s	° ′ ″	h m s		h m		h m	°	°
0. 0	20. 23. 10		(†)	0. 0	·02700	0. 0	60 ·8	62 ·4
1. 7	24. 55	1. 0	·1407*	0. 36	·02716	1. 0	59 ·6	60 ·7
2. 45	23. 55	2. 0	·1408	2. 10	·02698	2. 0	59 ·6	60 ·8
4. 17	24. 0	2. 22	·1406	6. 42	·02750	3. 0	60 ·7	61 ·3
5. 58	22. 0	2. 51	·1417	9. 15	·02710	9. 0	59 ·1	60 ·4
6. 30	20. 40	3. 27	·1408	9. 35	·02688	9. 30	58 ·4	60 ·4
7. 11	16. 0	4. 35	·1412	12. 22	·02685	21. 0	59 ·5	60 ·7
7. 48	19. 30	5. 17	·1420	13. 0	·02652	22. 0	59 ·8	61 ·0
8. 35	20. 0	5. 58	·1420	14. 45	·02629	23. 0	60 ·2	61 ·5
8. 54	19. 0	6. 13	·1416	15. 39	·02623			
9. 11	20. 0	6. 28	·1420	16. 17	·02600			
9. 25	19. 30		(†)	17. 11	·02610			
9. 39	20. 20	8. 45	·1433	19. 15	·02598			
9. 59	19. 0	9. 16	·1431	22. 30	·02610			
11. 9	19. 0	9. 50	·1417	23. 59	·02630			
11. 21	20. 20	11. 10	·1415					
11. 50	19. 20	11. 19	·1420					
12. 27	23. 45	12. 9	·1416					
13. 5	18. 30	12. 24	·1424					
13. 32	21. 5	13. 10	·1416					
14. 43	16. 0	13. 58	·1424					
15. 34	20. 30	15. 9	·1413					
15. 47	20. 30	15. 50	·1423					
16. 23	15. 40	16. 40	·1414					
17. 5	18. 45	17. 54	·1418					
18. 3	17. 30	19. 22	·1409					
19. 32	19. 5	19. 38	·1412					
20. 2	17. 30	20. 2	·1407					
20. 48	19. 50	20. 44	·1413					
21. 51	17. 0	23. 15	·1393					
22. 47	20. 0	23. 59	·1398					
23. 38	24. 30							
23. 55	23. 40							
23. 59	24. 0							
Aug. 7		Aug. 7		Aug. 7		Aug. 7		
0. 0	20. 24. 0	0. 0	·1398	0. 0	·02630	0. 0	60 ·2	61 ·7
0. 8	24. 40	0. 44	·1416	0. 35	·02643	1. 0	60 ·3	61 ·2
0. 28	22. 50	2. 0	·1412	1. 50	·02645	2. 0	60 ·4	61 ·4
0. 39	24. 0	3. 4	·1424	4. 5	·02680	3. 0	60 ·0	61 ·1
1. 0	24. 0	5. 4	·1419		(†)	8. 0	60 ·4	61 ·4
1. 44	25. 30	6. 8	·1427	9. 0	·02705*	9. 0	59 ·7	60 ·5
4. 15	24. 30	6. 17	·1423	21. 0	·02696*	9. 30	59 ·7	60 ·5
5. 37	21. 50	7. 34	·1414	21. 33	·02702	21. 0	61 ·2	62 ·5
5. 48	22. 0		(†)	22. 50	·02690	22. 0	61 ·0	62 ·8
6. 40	20. 20	9. 0	·1420*	23. 59	·02700	23. 0	61 ·3	63 ·4
7. 5	20. 35	9. 29	·1422					
7. 37	16. 15	9. 50	·1424					
7. 52	17. 55	10. 19	·1418					
8. 43	19. 0	10. 33	·1419					
9. 8	16. 30	10. 49	·1418					
9. 29	17. 50	11. 59	·1424					
9. 40	16. 50	12. 19	·1433					
9. 54	18. 30	12. 54	·1420					
10. 10	17. 40	14. 20	·1413					
11. 38	19. 10	15. 30	·1412					
12. 0	25. 35	17. 57	·1418					
12. 25	21. 0	19. 17	·1414					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Aug.13 h m s	° ′ ″	Aug.13 h m s		h m s		h m s	°	°
17. 35	20. 17. 5	19. 27	·1386					
18. 13	16. 10	19. 54	·1390					
18. 44	17. 0	21. 24	·1385					
19. 21	15. 55	23. 59	·1396					
19. 34	16. 35							
19. 42	15. 20							
19. 46	17. 45							
19. 52	17. 0							
22. 28	22. 10							
23. 59	26. 30							
Aug.14		Aug.14		Aug.14		Aug.14		
0. 0	20. 26. 30	0. 0	·1396	0. 0	·02900	0. 0	65 ·4	67 ·5
1. 9	29. 30	0. 25	·1393	4. 19	·03009	1. 0	65 ·5	67 ·6
2. 52	26. 10	1. 5	·1401	8. 0	·03025	2. 0	65 ·6	67 ·9
3. 13	27. 0	1. 28	·1393	8. 15	·03003	3. 0	65 ·8	68 ·1
4. 25	22. 0	1. 59	·1396	8. 38	·03020	6. 0	66 ·0	68 ·5
6. 29	19. 10	2. 19	·1400	9. 14	·03000	7. 0	66 ·1	68 ·7
7. 40	19. 10	2. 44	·1395	9. 37	·03014	8. 40	66 ·3	69 ·0
8. 5	16. 0	3. 11	·1396	10. 5	·02980	9. 0	66 ·5	69 ·2
8. 19	9. 40	3. 24	·1391	15. 55	·02976	10. 0	66 ·5	69 ·2
8. 57	20. 0	4. 1	·1391	17. 9	·02951	11. 0	66 ·6	69 ·3
9. 20	17. 0	4. 37	·1393	19. 0	·02955	12. 0	66 ·7	69 ·1
9. 55	19. 20	4. 57	·1385	21. 0	·02898	13. 0	66 ·9	69 ·1
10. 40	19. 25	5. 10	·1393	23. 0	·02882	13. 30	66 ·8	68 ·9
10. 45	21. 50	5. 18	·1390	23. 59	·02890	19. 0	66 ·6	67 ·8
10. 52	19. 50	5. 27	·1398			20. 0	65 ·1	66 ·0
11. 20	19. 20	5. 57	·1391			21. 0	65 ·0	65 ·3
11. 36	20. 0	6. 17	·1397			22. 0	65 ·9	66 ·5
12. 15	20. 0	6. 40	·1395			23. 0	64 ·9	65 ·2
12. 45	18. 15	7. 32	·1405					
12. 55	20. 0	7. 57	·1418					
14. 0	20. 20	8. 9	·1402					
14. 38	19. 55	8. 30	·1427					
14. 49	18. 30	9. 13	·1393					
15. 1	19. 30	9. 51	·1400					
15. 52	20. 40	10. 17	·1396					
16. 46	20. 40	11. 21	·1404					
17. 5	19. 10	11. 48	·1398					
17. 32	18. 55	12. 16	·1404					
17. 43	17. 20	13. 4	·1396					
17. 58	17. 25	13. 27	·1398					
18. 7	19. 0	13. 55	·1396					
18. 16	17. 25	14. 42	·1399					
18. 56	17. 20		***					
19. 9	16. 25	15. 50	·1387					
20. 5	17. 30	16. 16	·1393					
20. 16	16. 10	18. 20	·1394					
20. 31	16. 20	19. 9	·1389					
20. 40	17. 50	19. 35	·1393					
20. 55	16. 40	20. 29	·1386					
21. 8	18. 0	21. 45	·1376					
21. 49	17. 45	23. 59	·1395					
22. 24	19. 30							
22. 40	18. 40							
23. 59	23. 20							

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Aug.15 h m s	° ′ ″	Aug.15 h m s		Aug.15 h m s		Aug.15 h m s	°	°
0. 0	20. 23. 20	0. 0	·1395	0. 0	·02890	0. 0	65 ·7	66 ·1
0. 24	24. 0	1. 21	·1405	3. 50	·02865	1. 0	64 ·8	64 ·7
0. 55	23. 30	2. 7	·1400	13. 43	·02735	2. 0	64 ·5	64 ·6
1. 17	24. 20	2. 34	·1405	18. 3	·02666	3. 0	64 ·1	64 ·0
1. 36	23. 20	3. 19	·1399	22. 15	·02633	6. 0	..	63 ·4
3. 0	22. 20	3. 57	·1406	23. 59	·02670	9. 0	62 ·6	62 ·6
4. 12	18. 20	4. 19	·1398			10. 0	62 ·7	62 ·7
7. 31	17. 0		***			10. 20	62 ·8	62 ·7
8. 50	18. 30	9. 0	·1413			21. 0	63 ·1	63 ·0
9. 29	17. 30	10. 24	·1414			22. 0	63 ·2	63 ·2
9. 37	18. 15	10. 47	·1417			23. 0	63 ·5	63 ·4
9. 51	17. 20	11. 4	·1414					
10. 54	18. 20		***					
11. 16	17. 30	16. 25	·1404					
12. 48	19. 30	19. 25	·1407					
15. 6	18. 30	21. 58	·1390					
15. 13	19. 5	23. 59	·1386					
16. 15	17. 10							
16. 45	17. 10							
17. 24	15. 30							
17. 56	16. 40							
18. 10	15. 50							
	***							
19. 7	14. 40							
19. 48	15. 10							
20. 0	14. 10							
22. 21	19. 15							
23. 49	25. 30							
23. 59	25. 30							
Aug.16		Aug.16		Aug.16		Aug.16		
0. 0	20. 25. 30	0. 0	·1386	0. 0	·02670	0. 0	63 ·5	63 ·5
0. 23	27. 0	0. 31	·1387	5. 4	·02750	1. 0	63 ·8	64 ·2
2. 2	26. 0	2. 35	·1402	8. 53	·02665	2. 0	63 ·8	64 ·2
3. 46	21. 5	2. 56	·1407	14. 10	·02580	3. 0	63 ·8	64 ·4
5. 4	19. 35	4. 8	·1402	22. 44	·02568	5. 0	63 ·8	64 ·4
6. 58	18. 30	6. 0	·1406	23. 59	·02590	6. 0	63 ·8	64 ·3
7. 33	18. 55	6. 30	·1398			9. 0	60 ·5	60 ·7
7. 48	18. 0		***			9. 40	60 ·9	61 ·4
11. 55	18. 25	12. 25	·1415			21. 0	62 ·8	62 ·6
13. 11	19. 10	15. 54	·1410			22. 0	62 ·4	62 ·6
13. 27 :	21. 20	18. 39	·1412			23. 0	62 ·5	63 ·0
14. 10	18. 40	22. 45	·1385					
18. 30	15. 50	23. 46	·1375					
19. 46	15. 50	23. 59	·1378					
21. 35	18. 40							
23. 59	25. 30							
Aug.17		Aug.17		Aug.17		Aug.17		
0. 0	20. 25. 30	0. 0	·1378	0. 0	·02590	0. 0	62 ·6	63 ·2
0. 45	27. 0	1. 27	·1382	1. 7	·02589	1. 0	62 ·8	63 ·6
1. 44	26. 40	1. 49	·1388	4. 12	·02671	2. 0	62 ·8	63 ·7
4. 10	22. 0	2. 57	·1386	6. 27	·02685	3. 0	62 ·8	63 ·9
4. 33	20. 0	3. 15	·1388	8. 57	·02645	6. 0	63 ·4	64 ·2
5. 25	18. 45	3. 29	·1387	10. 35	·02629	8. 30	62 ·7	62 ·7
7. 15	19. 35	3. 55	·1395	22. 17	·02640	9. 0	62 ·3	62 ·4
8. 43	19. 10	4. 19	·1393	23. 59	·02633	10. 30	62 ·0	62 ·2
9. 13	18. 5	4. 35	·1383			11. 10	62 ·4	62 ·6

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Aug.17	° ′ ″	Aug.17				Aug.17		
h m		h m		h m		h m	°	°
11. 20	20. 19. 20	4. 59	·1389			21. 15	63 ·7	63 ·7
12. 58	19. 50	5. 57	·1383					
13. 5	20. 50	6. 27	·1385					
13. 27	19. 0		(†)					
13. 47	19. 30	9. 0	·1396*					
14. 18	18. 10	9. 41	·1387					
15. 27	18. 50	12. 48	·1392					
15. 50	17. 50	13. 0	·1401					
16. 3	18. 20	15. 24	·1397					
16. 19	17. 45	17. 35	·1396					
16. 55	19. 0	19. 30	·1380					
17. 48	17. 50	20. 29	·1380					
18. 8	16. 0	21. 49	·1366					
18. 22	16. 0	23. 59	·1373					
18. 30	15. 30							
18. 58	17. 10							
19. 13	17. 0							
19. 39	19. 0							
20. 37	17. 20							
21. 13	18. 0							
22. 41	23. 0							
23. 59	27. 20							
Aug.18		Aug.18		Aug.18		Aug.18		
0. 0	20. 27. 20	0. 0	·1373	0. 0	·02633	0. 0	63 ·5	64 ·3
	***	0. 25	·1377	5. 39	·02720	1. 0	63 ·4	64 ·5
1. 3	29. 40	0. 33	·1374	9. 14	·02740	5. 0	63 ·6	65 ·1
1. 10	29. 0	0. 40	·1377	12. 4	·02719	8. 0	63 ·9	65 ·4
1. 58	28. 30	0. 47	·1376	12. 58	·02669	8. 45	64 ·2	64 ·8
4. 14	22. 50	0. 57	·1383	14. 10	·02681	9. 15	64 ·1	64 ·5
4. 32	21. 0	1. 6	·1377	22. 35	·02630	10. 45	63 ·7	64 ·1
5. 54	19. 15	1. 44	·1383	23. 59	·02623	11. 30	63 ·3	63 ·4
7. 37	19. 40	1. 59	·1393			12. 0	62 ·8	62 ·9
8. 4	18. 0	2. 59	·1390			12. 15	62 ·6	62 ·7
9. 38	19. 55	3. 16	·1395			21. 0	63 ·0	63 ·2
9. 49	18. 0	3. 46	·1391			22. 0	63 ·1	63 ·7
10. 2	19. 50	4. 17	·1393			23. 0	63 ·4	63 ·8
10. 30	17. 30	4. 34	·1383					
11. 1	19. 5	4. 50	·1394					
11. 58	17. 0	5. 15	·1387					
12. 50	22. 0	6. 8	·1395					
13. 15	17. 30	6. 36	·1392					
13. 38	16. 0	7. 19	·1397					
13. 51	16. 15	7. 40	·1390					
14. 1	15. 0	8. 7	·1395					
14. 35	19. 0	9. 44	·1392					
15. 27	16. 30	9. 58	·1398					
16. 14	16. 0	10. 29	·1385					
16. 22	15. 0	11. 8	·1393					
16. 29	16. 30	11. 50	·1390					
16. 35	16. 45	12. 44	·1404					
16. 42	16. 0	14. 3	·1383					
17. 27	15. 30	16. 30	·1383					
17. 50	16. 0	18. 28	·1385					
18. 15	14. 30	21. 26	·1376					
18. 23	14. 50	21. 48	·1370					
18. 39	13. 40	22. 24	·1375					
20. 2	14. 0	22. 46	·1369					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Aug.18	° ′ ″	Aug.18						
h m		h m		h m		h m	°	°
21. 32	20. 17. 40	23. 59	·1376					
21. 40	18. 55							
21. 54	18. 55							
23. 5	24. 30							
23. 59	27. 40							
Aug.19		Aug.19		Aug.19		Aug.19		
0. 0	20. 27. 40	0. 0	·1376	0. 0	·02623	0. 0	63 ·8	64 ·0
0. 27	30. 15	0. 26	·1383	3. 3	·02743	1. 0	64 ·0	65 ·6
1. 20	30. 30	0. 48	·1376	4. 34	·02776	2. 0	64 ·0	66 ·0
1. 27	29. 55	1. 38	·1388	11. 11	·02829	3. 0	64 ·2	66 ·5
1. 35	30. 30	1. 50	·1381	12. 26	·02808	5. 30	64 ·3	67 ·1
1. 43	28. 30	2. 7	·1386	14. 59	·02836	6. 0	64 ·5	67 ·3
2. 55	25. 40	2. 47	·1383	22. 57	·02810	7. 0	64 ·6	67 ·5
3. 3	27. 0	3. 9	·1402	23. 59	·02800	8. 0	66 ·0	67 ·3
3. 10	25. 30	3. 24	·1379			9. 0	66 ·0	67 ·3
3. 50	24. 50	4. 12	·1388			10. 30	65 ·8	67 ·2
6. 3	19. 0	4. 34	·1377			11. 15	65 ·7	66 ·9
6. 32	18. 30	5. 40	·1383			11. 30	65 ·5	66 ·9
7. 16	19. 30	6. 0	·1379			18. 30	63 ·4	66 ·2
10. 44	19. 10	7. 26	·1384			19. 0	65 ·0	66 ·7
11. 0	20. 50	7. 47	·1379			19. 20	65 ·0	66 ·8
11. 30	16. 30	7. 57	·1384			21. 0	65 ·0	66 ·5
11. 45	17. 15	9. 45	·1387			22. 0	65 ·2	67 ·0
12. 13	16. 0	10. 36	·1381			23. 0	64 ·8	66 ·2
12. 47	16. 30	11. 45	·1396					
13. 12	18. 15	12. 59	·1379					
14. 55	18. 10	13. 57	·1383					
15. 18	20. 0	14. 56	·1384					
15. 45	20. 0	15. 24	·1381					
16. 25	16. 40	16. 26	·1389					
18. 18	16. 45	16. 50	·1386					
18. 30	15. 55	18. 36	·1389					
19. 40	16. 50	19. 23	·1383					
19. 56	16. 30	20. 14	·1385					
21. 45	18. 45	21. 50	·1376					
23. 25	24. 30	23. 59	·1380					
23. 59	25. 30							
Aug.20		Aug.20		Aug.20		Aug.20		
0. 0	20. 25. 30	0. 0	·1380	0. 0	·02800	0. 0	65 ·2	67 ·0
1. 0	27. 0	1. 58	·1392	5. 29	·02881	1. 0	65 ·4	67 ·4
1. 12	28. 0	2. 17	·1390	8. 35	·02789	2. 0	65 ·7	67 ·7
2. 5	27. 15	2. 35	·1396	10. 43	·02764	3. 0	65 ·7	67 ·8
3. 20	23. 40	2. 57	·1388	11. 7	·02745	5. 30	65 ·4	67 ·4
3. 30	24. 10	3. 9	·1391	11. 36	·02758	6. 0	64 ·6	66 ·0
4. 54	21. 30	3. 18	·1385	12. 9	·02737	7. 0	63 ·5	65 ·1
5. 0	22. 0	3. 29	·1397	12. 47	·02739	8. 0	62 ·4	64 ·2
5. 21	21. 20	3. 48	·1390	17. 41	·02660	9. 0	62 ·5	63 ·5
5. 25	21. 50	4. 9	·1387	18. 53	·02656	9. 45	62 ·0	63 ·5
5. 59	20. 30	4. 28	·1391	23. 0	·02652	21. 0	62 ·8	63 ·0
9. 15	18. 30	4. 50	·1388	23. 59	·02680	22. 0	63 ·0	64 ·6
10. 0	18. 50	4. 59	·1397			23. 0	63 ·4	65 ·2
10. 12	18. 10	5. 19	·1390					
10. 30	18. 5	5. 27	·1396					
11. 5	14. 25	5. 58	·1381					
11. 31	20. 25		***					
12. 6	17. 0	6. 45	·1397					
			***					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Aug.26 h m	° ′ ″	Aug.26 h m		Aug.26 h m		h m	°	°
10. 23	20. 16. 5	9. 39	·1407	23. 21	·02484			
10. 36	15. 45	10. 10	·1384	23. 59	·02500			
10. 50	17. 0	10. 28	·1395					
11. 0	19. 0	10. 52	·1387					
11. 14	19. 10	11. 48	·1397					
12. 0	16. 0	13. 10	·1393					
12. 35	17. 20	13. 32	·1380					
12. 51	15. 50	14. 7	·1395					
13. 13	19. 15	14. 45:	·1403					
13. 38	30. 0	15. 20	·1391					
14. 29	16. 30	15. 35	·1384					
15. 28:	15. 0	17. 10	·1389					
16. 0	18. 0	17. 30	·1380					
16. 14	17. 10	18. 4	·1381					
16. 44	15. 35	18. 50	·1388					
17. 10	16. 55	19. 5	·1381					
17. 20	16. 0	19. 17	·1387					
18. 2	16. 10	19. 38	·1373					
18. 42	17. 0	20. 39	·1373					
18. 49	15. 10	21. 5	·1378					
19. 10	19. 0	21. 34	·1373					
19. 23	16. 45	22. 44	·1385					
19. 30	18. 30	23. 59	·1394					
19. 44	17. 20							
	***							
21. 30	20. 25							
22. 4	20. 30							
22. 55	22. 30							
23. 54	24. 15							
23. 59	25. 0							
Aug.27		Aug.27		Aug.27		Aug.27		
0. 0	20. 25. 0	0. 0	·1394	0. 0	·02500	0. 0	61 ·6	63 ·1
0. 35	26. 40	0. 7	·1397	2. 1	·02575	1. 0	61 ·9	63 ·7
0. 48	26. 0	0. 26	·1395	4. 21	·02609	2. 0	62 ·0	63 ·8
1. 10:	27. 50	0. 56	·1385	5. 13	·02609	3. 0	62 ·1	64 ·0
1. 45	26. 5	1. 16	·1392	5. 29	·02625	6. 0	62 ·1	64 ·2
1. 57	26. 45	1. 32	·1386	6. 52	·02605	7. 0	61 ·0	62 ·4
2. 10	24. 10	1. 47	·1392	8. 28	·02535	8. 0	59 ·1	60 ·7
2. 20	24. 50	2. 38	·1378	10. 29	·02522	9. 0	60 ·8	62 ·1
2. 38	23. 15	3. 56	·1389	11. 21	·02490	21. 0	60 ·4	61 ·5
	***	4. 6	·1387	11. 57	·02495	22. 0	60 ·5	61 ·6
5. 15	19. 20	4. 27	·1394	13. 54	·02491	23. 0	60 ·8	62 ·2
5. 30	16. 5	4. 34	·1386	14. 37	·02472			
6. 37	18. 40	4. 41	·1393	18. 50	·02429			
6. 50	17. 0	4. 56	·1385	23. 13	·02450			
7. 5	18. 30	5. 6	·1390	23. 59	·02470			
7. 27	17. 55	5. 22	·1380					
7. 40	13. 20	5. 41	·1400					
7. 48	16. 50	6. 1	·1393					
8. 0	16. 10	6. 17	·1392					
8. 16	18. 0	6. 36	·1383					
8. 46	16. 5	6. 57	·1392					
9. 25	18. 30	7. 16	·1384					
9. 57	17. 20	7. 45	·1401					
10. 12	18. 0	8. 10	·1399					
10. 38	13. 0	8. 23	·1389					
11. 3	18. 0	9. 31	·1397					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Aug.27 h m	° ′ ″	Aug.27 h m		h m		h m	°	°
11. 40	20. 13. 20	9. 37	·1393					
12. 18	17. 0	10. 10	·1396					
12. 34	16. 25	10. 23	·1404					
12. 56	18. 40	10. 41	·1424					
13. 5	18. 35	10. 54	·1410					
13. 16	20. 45	10. 58	·1415					
13. 28	20. 20	11. 7	·1413					
13. 48	22. 0	11. 38	·1393					
14. 30	18. 0	11. 50	·1396					
15. 0	16. 30	12. 10	·1387					
15. 11	17. 30	12. 54	·1390					
15. 32	16. 0	13. 32	·1385					
15. 49	16. 55	14. 19	·1396					
16. 25	15. 50	15. 20	·1396					
16. 30	17. 0	15. 30	·1391					
16. 40	16. 35	16. 20	·1396					
17. 6	18. 0	17. 5	·1385					
17. 28	17. 0	17. 33	·1383					
17. 42	17. 20	18. 27	·1392					
17. 57	16. 20	19. 12	·1392					
18. 21	17. 0	20. 10	·1384					
18. 28	15. 50	20. 50	·1373					
19. 11	15. 50	21. 16	·1373					
19. 35	17. 0	22. 16	·1387					
19. 59	16. 0	22. 31	·1381					
20. 20	17. 50	23. 4	·1387					
20. 35	17. 25	23. 59	·1391					
21. 3	18. 30							
21. 42	18. 20							
21. 59	19. 30							
22. 8	18. 30							
22. 14	21. 50							
22. 30	20. 40							
23. 2	22. 25							
23. 10	23. 30							
23. 37	22. 40							
23. 49	23. 30							
23. 59	23. 30							
Aug.28		Aug.28		Aug.28		Aug.28		
0. 0	20. 23. 30	0. 0	·1391	0. 0	·02470	0. 0	61 ·2	62 ·9
1. 1	25. 0	0. 59	·1400	5. 53	·02596	1. 0	61 ·4	63 ·4
1. 27	23. 15	1. 21	·1389	7. 10	·02599	2. 0	61 ·6	63 ·6
1. 36	24. 0	2. 21	·1399	7. 30	·02613	3. 0	61 ·6	63 ·7
1. 49	23. 10	2. 47	·1389	7. 51	·02580	6. 0	61 ·8	64 ·3
2. 18	23. 40	3. 5	·1385	12. 40	·02550	7. 0	62 ·4	63 ·7
2. 37	23. 0	3. 40	·1395	13. 10	·02530	8. 0	62 ·1	63 ·3
2. 43	21. 10	3. 59	·1390	23. 20	·02585	9. 0	61 ·7	62 ·6
2. 51	21. 15	4. 9	·1396	23. 59	·02580	9. 30	..	62 ·1
3. 34	19. 10	4. 24	·1393			21. 0	62 ·6	64 ·5
4. 11	20. 10	4. 35	·1396			22. 0	62 ·2	64 ·6
4. 44	19. 40	4. 54	·1389			23. 0	62 ·5	65 ·1
4. 57	19. 50	5. 26	·1391					
5. 19	17. 20	6. 18	·1399					
5. 55	17. 0	7. 4	·1387					
6. 3	17. 30	7. 33	·1436					
6. 38	17. 0	8. 30	·1389					
7. 21	1. 0	9. 42	·1392					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Aug.28	° ′ ″	Aug.28		h m		h m	°	°
h m		h m						
7. 41	20. 9. 0	11. 28	·1402					
7. 53	8. 50	12. 22	·1396					
8. 15	15. 50	13. 5	·1410					
8. 59	15. 0	13. 57	·1394					
9. 30	16. 30	14. 6	·1399					
9. 54	15. 10	14. 28	·1395					
10. 19	16. 30	14. 55	·1398					
10. 38	15. 20	17. 34	·1393					
10. 48	16. 5	18. 41	·1399					
11. 19	16. 20	20. 54	·1389					
11. 30	17. 0	22. 4	·1378					
11. 56	15. 50	22. 18	·1380					
12. 15	15. 50	22. 28	·1371					
12. 35	14. 30	22. 40	·1372					
12. 57	12. 0	23. 0	·1365					
13. 9	10. 40	23. 28	·1373					
13. 14	11. 20	23. 44	·1380					
13. 27	11. 15	23. 59	·1376					
14. 9	16. 10							
14. 33	14. 20							
14. 42	16. 0							
14. 48	16. 0							
15. 5	14. 25							
15. 20	14. 50							
15. 38	16. 10							
15. 57	15. 0							
16. 15	16. 55							
16. 28	16. 5							
17. 25	17. 55							
17. 47	16. 30							
19. 14	14. 20							
19. 24	15. 20							
19. 40	14. 30							
20. 25	16. 50							
20. 34	15. 30							
21. 4	18. 30							
21. 16	17. 30							
22. 32	22. 0							
22. 49	23. 30							
23. 5	22. 40							
23. 27	25. 30							
23. 45	25. 0							
23. 59	26. 45							
Aug.29		Aug.29		Aug.29		Aug.29		
0. 0	20. 26. 45	0. 0	·1376	0. 0	·02580	0. 0	62·8	65·5
0. 15	26. 10	0. 15	·1387	2. 1	·02645	1. 0	63·0	65·9
0. 52	29. 30	0. 26	·1382	3. 15	·02704	2. 0	63·8	65·9
1. 15	27. 50	0. 57	·1399	7. 58	·02725	3. 0	63·4	66·1
1. 45	28. 10	1. 28	·1387	11. 30	·02691	5. 30	63·2	66·2
1. 50	26. 40	1. 46	·1395	11. 58	·02678	6. 0	64·2	66·1
2. 6	27. 0	2. 45	·1396	14. 27	·02651	7. 0	64·2	66·0
3. 0	18. 10	3. 9	·1384	14. 59	·02632	8. 0	63·7	65·3
3. 47	22. 0	3. 20	·1392	16. 7	·02620	9. 0	63·4	64·8
3. 57	21. 40	3. 37	·1386	17. 19	·02598	11. 0	62·8	64·3
4. 10	22. 50	4. 6	·1395	18. 23	·02590	21. 0	62·4	64·5
4. 29	23. 0	4. 19	·1391	23. 22	·02630	22. 0	62·6	64·7
4. 33	22. 0	4. 27	·1395	23. 59	·02635	23. 0	62·8	65·0

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Aug.29	° ′ ″	Aug.29		h m		h m	°	°
h m		h m						
5. 40	20. 20. 30	4. 47	·1382					
5. 57	19. 15	5. 56	·1399					
6. 20	19. 55	7. 36	·1400					
7. 11	18. 45	8. 1	·1410					
7. 42	13. 45	9. 17	·1396					
8. 5	16. 30	11. 7	·1397					
8. 20	16. 15	11. 43	·1414					
8. 38	17. 0	12. 20	·1398					
9. 15	16. 10	14. 7	·1392					
9. 53	17. 30	14. 36	·1400					
10. 50	17. 0	15. 57	·1396					
11. 16	18. 30	16. 47	·1403					
11. 36	16. 40	17. 25	·1396					
12. 11	17. 40	17. 55	·1398					
12. 27	16. 30	18. 18	·1389					
13. 25	15. 0	19. 5	·1390					
14. 0	18. 50	19. 19	·1397					
14. 29	20. 0	19. 55	·1393					
15. 7	17. 0	20. 16	·1377					
16. 2	16. 40	20. 22	·1382					
16. 24	17. 30	20. 45	·1377					
16. 47	16. 55	21. 27	·1382					
17. 2	16. 0	23. 59	·1390					
18. 9	19. 0							
18. 18	20. 15							
18. 23	19. 55							
19. 2	17. 30							
19. 59	20. 30							
20. 10	19. 50							
20. 18	20. 50							
20. 30	20. 0							
20. 50	23. 0							
21. 7	23. 0							
22. 23	20. 50							
23. 26	23. 0							
23. 59	25. 30							
Aug.30		Aug.30		Aug.30		Aug.30		
0. 0	20. 25. 30	0. 0	·1390	0. 0	·02635	0. 0	63·1	65·3
0. 15	26. 50	0. 30	·1396	2. 50	·02710	1. 0	63·3	65·6
1. 5	26. 0	1. 12	·1391	5. 30	·02723	2. 0	63·3	65·8
2. 25	24. 10	1. 32	·1386	6. 25	·02740	3. 0	63·5	66·2
2. 49	24. 30	2. 58	·1393	8. 9	·02692	6. 0	63·5	66·2
3. 13	22. 40	3. 16	·1381	8. 20	·02700	9. 0	62·1	63·3
5. 25	19. 5	3. 39	·1387	8. 38	·02665	9. 30	62·4	64·0
5. 35	17. 30	3. 57	·1382	9. 33	·02649	20. 30	63·1	65·0
5. 54	18. 5		***	10. 7	·02657	21. 0	63·2	65·2
7. 2	18. 30	5. 5	·1387	12. 10	·02644	22. 0	63·2	65·4
7. 13	16. 20	5. 38	·1380	12. 40	·02630	23. 0	63·4	66·0
7. 23	17. 30	6. 5	·1392	13. 53	·02645			
7. 52	16. 30	6. 30	·1394	15. 28	·02643			
8. 8	10. 20	6. 57	·1384	18. 35	·02640			
8. 27	17. 50	7. 17	·1385	19. 0	·02658			
8. 54	15. 0	7. 33	·1393	23. 21	·02681			
9. 25	17. 0	8. 4	·1385	23. 59	·02682			
9. 46	14. 30	8. 30	·1413					
9. 55	15. 30	8. 46	·1396					
10. 5	14. 55	9. 14	·1394					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Sept. 5 h m s	° ′ ″	Sept. 5 h m s		Sept. 5 h m s		h m	°	°
5. 46	20. 14. 30	6. 57	·1392	15. 7	·02500			
5. 55	14. 0	9. 6	·1396	18. 35	·02476			
7. 1	19. 10	9. 22	·1394	19. 22	·02486			
7. 20	19. 15	14. 17	·1390	20. 6	·02480			
7. 32	18. 30	14. 46	·1407	21. 11	·02500			
9. 10	17. 30	16. 0	·1396	23. 5	·02511			
9. 37	17. 30	16. 31	·1403	23. 59	·02530			
9. 54	18. 45	17. 19	·1396					
12. 20	17. 55	18. 2	·1400					
12. 37	19. 30	19. 34	·1392					
13. 3	17. 50	20. 9	·1384					
13. 23	18. 30	20. 39	·1366					
14. 1	16. 0	21. 8	·1361					
14. 20	21. 25	22. 0	·1381					
15. 10	13. 35	22. 32	·1372					
15. 43	12. 30	22. 46	·1378					
16. 8	14. 0	23. 5	·1374					
16. 30	14. 0	23. 8	·1376					
16. 35	13. 35	23. 25	·1372					
16. 59	15. 50	23. 59	·1376					
17. 13	15. 20							
17. 25	16. 25							
17. 38	16. 50							
17. 40	15. 30							
17. 50	16. 45							
18. 3	15. 20							
18. 59	14. 20							
19. 15	15. 10							
19. 34	14. 55							
19. 59	15. 50							
20. 12	17. 0							
20. 37	17. 0							
20. 50	19. 30							
21. 13	26. 0							
21. 54	23. 0							
22. 7	25. 0							
22. 40	23. 0							
22. 44	25. 20							
22. 58	24. 0							
23. 11	26. 30							
23. 37	25. 0							
23. 59	25. 30							
Sept. 6		Sept. 6		Sept. 6		Sept. 6		
0. 0	20. 25. 30	0. 0	·1376	0. 0	·02530	0. 0	62 ·8	64 ·3
0. 14	26. 0	0. 15	·1384	5. 15	·02623	1. 0	63 ·0	64 ·9
0. 20	25. 10	0. 22	·1379	6. 5	·02659	2. 0	63 ·0	65 ·1
0. 40	26. 10	0. 53	·1386	7. 38	·02590	3. 0	62 ·9	65 ·0
4. 15	21. 45	1. 44	·1387	9. 5	·02555	6. 9	62 ·8	64 ·9
5. 12	20. 50	2. 0	·1382	10. 50	·02535	9. 0	60 ·8	61 ·8
5. 35	19. 20	2. 12	·1388	11. 10	·02519	21. 0	61 ·7	63 ·0
5. 50	20. 10	2. 40	·1383	15. 25	·02497	22. 0	61 ·7	63 ·6
6. 20	18. 30	4. 4	·1392	16. 10	·02465	23. 0	62 ·1	63 ·9
6. 33	18. 30	4. 19	·1385	16. 32	·02462			
6. 53	21. 0	4. 30	·1389	17. 9	·02457			
7. 41	20. 50	5. 2	·1387	17. 34	·02441			
7. 55	19. 30	5. 26	·1373	18. 56	·02447			
8. 16	20. 30	5. 57	·1386	21. 26	·02499			

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Sept. 6 h m s	° ′ ″	Sept. 6 h m s		Sept. 6 h m s		h m	°	°
9. 6	20. 18. 30	6. 6	·1384	21. 35	·02490			
9. 43	16. 35	6. 8	·1365	21. 51	·02505			
10. 15	18. 30	6. 42	·1380	23. 30	·02510			
10. 33	18. 20		***	23. 59	·02493			
10. 53	21. 20	10. 27	·1394					
11. 26	17. 15	10. 55	·1404					
12. 5	15. 0	11. 57	·1396					
12. 45	17. 30	12. 14	·1388					
12. 59	18. 5	13. 10	·1392					
13. 16	17. 0	13. 31	·1388					
14. 4	18. 0	14. 9	·1393					
14. 22	16. 15	15. 12	·1387					
14. 45	19. 30	15. 59	·1397					
14. 58	19. 0	16. 12	·1394					
15. 6	20. 0	16. 39	·1404					
15. 25	26. 25	16. 54	·1398					
16. 3	19. 30	17. 11	·1405					
16. 27	19. 55	17. 38	·1396					
16. 29	21. 55	18. 20	·1397					
16. 47	18. 20	19. 6	·1390					
17. 24	22. 0	19. 44	·1389					
17. 40	19. 30	19. 57	·1396					
17. 49	19. 10	21. 20	·1367					
18. 2	17. 50	21. 40	·1363					
18. 16	18. 0	21. 55	·1371					
18. 19	17. 0	22. 5	·1379					
19. 21	15. 0	23. 0	·1375					
19. 30	15. 55	23. 43	·1382					
19. 46	12. 30		(†)					
20. 0	17. 50							
20. 8	17. 0							
20. 27	18. 55							
20. 35	18. 0							
20. 47	19. 30							
20. 58	18. 30							
21. 19	21. 30							
21. 42	22. 0							
22. 10	28. 0							
22. 20	26. 10							
22. 40	25. 0							
22. 50	25. 50							
23. 5	24. 10							
23. 41	24. 0							
23. 49	25. 10							
	(†)							
Sept. 7		Sept. 7		Sept. 7		Sept. 7		
	(†)		(†)			0. 0	62 ·2	64 ·1
1. 10	20. 32. 30	1. 13	·1376	1. 25	·02493	1. 0	62 ·5	64 ·6
1. 20	32. 20	1. 26	·1389	1. 36	·02550	2. 0	62 ·4	64 ·6
1. 27	33. 30	1. 41	·1381	2. 12	·02540	3. 0	62 ·6	64 ·8
1. 39	27. 0	1. 57	·1363	2. 31	·02630	6. 0	62 ·9	65 ·0
1. 42	28. 30	2. 17	·1384	3. 0	·02606	9. 0	60 ·8	62 ·0
2. 0	21. 0	2. 36	·1358	3. 19	·02624	9. 20	60 ·1	61 ·8
2. 5	22. 5	2. 41	·1367	3. 49	·02600	21. 0	61 ·4	62 ·3
2. 10	21. 30	2. 48	·1365	4. 2	·02695			
2. 30	31. 30	3. 5	·1377	4. 9	·02680			
2. 39	29. 20	3. 28	·1365	4. 38	·02690			
					·02669			

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Sept. 7		Sept. 7		Sept. 7				
h m	° ′ ″	h m		h m		h m	°	°
2. 45	20. 31. 0	3. 41	·1368	7. 44	·02585			
2. 59	28. 0	3. 58	·1383	7. 50	·02609			
3. 10	31. 20	4. 4	·1365	8. 4	·02582			
3. 30	23. 0	4. 12	·1372	8. 15	·02582			
3. 39	24. 0	4. 26	·1359	8. 37	·02545			
3. 54	24. 0	4. 42	·1359	8. 49	·02544			
4. 2	28. 0	5. 12	·1382	9. 5	·02521			
4. 10	25. 40	5. 30	·1376	10. 34	·02515			
4. 12	27. 5	6. 3	·1384	11. 2	·02485			
4. 26	27. 0	6. 23	·1386	11. 19	·02486			
4. 40	25. 50	6. 42	·1393	12. 0	·02435			
4. 54	21. 25	7. 16	·1375	12. 38	·02420			
5. 18	21. 55	7. 38	·1362	13. 6	·02452			
5. 42	19. 30	7. 57	·1393	13. 55	·02429			
6. 7	21. 20	8. 19	·1430	14. 20	·02439			
6. 30	20. 30	8. 35	·1395	15. 45	·02413			
6. 38	20. 45	8. 44	·1402	17. 15	·02425			
6. 49	19. 30	9. 7	·1382	17. 56	·02406			
7. 2	17. 20	9. 21	·1389	22. 30	·02450			
7. 10	17. 55	9. 43	·1383	23. 59	·02500			
7. 22	15. 35	10. 20	·1384					
7. 29	20. 15. 0	10. 44	·1406					
7. 51	19. 52. 20	11. 0	·1401					
7. 59	58. 0	11. 19	·1412					
8. 8	19. 53. 10	11. 47	·1402					
8. 30	20. 10. 20	11. 59	·1410					
8. 40	9. 40	12. 8	·1406					
8. 58	15. 55	12. 48	·1370					
9. 7	13. 30	13. 26	·1390					
9. 27	18. 0	13. 56	·1376					
9. 40	18. 45	14. 44	·1379					
9. 48	17. 45	14. 59	·1374					
10. 2	17. 40	16. 16	·1390					
10. 15	18. 35	16. 31	·1386					
10. 29	17. 30	17. 14	·1393					
10. 40	19. 0	17. 45	·1384					
11. 1	16. 0	18. 51	·1372					
11. 31	24. 0	19. 14	·1383					
11. 55	10. 55	19. 58	·1376					
12. 40	6. 30	20. 32	·1379					
13. 9	19. 0	21. 28	·1375					
13. 23	16. 55	22. 25	·1378					
13. 30	18. 50	23. 59	·1368					
13. 47	16. 30							
14. 0	16. 30							
14. 25	20. 20							
14. 27	19. 20							
14. 55	23. 20							
15. 40	22. 20							
15. 49	23. 0							
16. 5	20. 0							
16. 23	18. 0							
16. 45	17. 50							
16. 59	18. 55							
17. 3	18. 15							
17. 33	19. 30							
17. 44	18. 10							
17. 57	19. 40							
18. 17	20. 19. 30							
18. 25	18. 15							
18. 33	19. 30							
19. 7	19. 30							
19. 13	20. 50							
19. 37	18. 50							
19. 53	20. 0							
20. 2	19. 30							
20. 8	21. 0							
20. 19	21. 0							
20. 30	20. 0							
20. 37	20. 20							
21. 35	17. 30							
22. 0	19. 55							
22. 9	19. 0							
22. 44	23. 0							
23. 40	26. 30							
23. 57	25. 0							
23. 59	25. 10							
Sept. 8		Sept. 8		Sept. 8		Sept. 8		
0. 0	20. 25. 10	0. 0	·1368	0. 0	·02500	0. 0	61 ·8	63 ·7
0. 55	27. 55	0. 42	·1375	1. 0	·02520	1. 0	61 ·8	63 ·9
1. 54	21. 30	0. 55	·1370	1. 53	·02559	6. 30	62 ·3	65 ·0
2. 18	22. 5	1. 6	·1375	6. 27	·02577	9. 0	62 ·3	65 ·5
2. 40	21. 0	1. 12	·1367	11. 55	·02520	21. 0	61 ·8	63 ·9
2. 55	23. 0	1. 27	·1374	13. 57	·02420	22. 0	62 ·0	64 ·3
3. 29	23. 10	2. 2	·1380	14. 54	·02440	23. 0	62 ·3	64 ·7
3. 50	22. 0	2. 10	·1374	15. 44	·02435			
4. 3	22. 50	3. 7	·1374	18. 50	·02458			
4. 25	22. 0	3. 18	·1369	22. 3	·02499			
4. 51	22. 15	3. 33	·1375	23. 0	·02509			
6. 29	19. 0	4. 6	·1371	23. 59	·02533			
6. 40	20. 5	4. 28	·1380					
7. 48	18. 30		***					
8. 3	19. 0	5. 18	·1378					
8. 40	17. 20	5. 22	·1383					
9. 25	18. 45	5. 44	·1380					
11. 19	18. 5	6. 8	·1384					
11. 33	19. 35	6. 21	·1390					
11. 55	23. 35	6. 57	·1388					
12. 11	20. 45	8. 18	·1393					
12. 29	22. 20	10. 59	·1387					
13. 5	14. 30	11. 30	·1388					
13. 20	14. 50	11. 58	·1404					
13. 55	10. 50	13. 2	·1399					
14. 11	11. 0	13. 31	·1405					
15. 7	16. 30	14. 15	·1380					
15. 18	15. 30	15. 22	·1390					
15. 43	15. 25	16. 4	·1380					
16. 15	19. 30	17. 15	·1382					
17. 5	18. 35	17. 34	·1387					
17. 23	19. 0	18. 15	·1393					
17. 46	20. 30	19. 5	·1376					
18. 10	20. 30	20. 0	·1368					
18. 54	21. 40	20. 12	·1374					
19. 7	20. 40	20. 27	·1369					
19. 51	23. 55	21. 6	·1367					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.
Sept. 13 h m	° ′ ″
18. 21	20. 16. 0
18. 40	14. 50
19. 0	16. 0
19. 9	15. 0
19. 11	17. 0
19. 21	16. 0
19. 37	17. 0
19. 58	15. 5
20. 20	16. 35
20. 37	18. 20
21. 39	19. 30
21. 55	22. 10
22. 0	20. 50
22. 10	21. 40
22. 29	20. 30
22. 34	23. 50
22. 49	21. 50
23. 0	24. 50
23. 5	23. 0
23. 25	24. 55
23. 59	24. 10
Sept. 14	
0. 0	20. 24. 10
0. 10	26. 40
0. 13	25. 30
0. 26	26. 40
0. 42	25. 0
1. 15	25. 40
1. 23	26. 50
1. 29	25. 30
1. 47	26. 55
1. 55	26. 5
2. 11	24. 10
2. 35	24. 45
2. 44	24. 0
2. 49	24. 55
3. 3	23. 0
3. 11	21. 0
3. 43	19. 20
4. 37	20. 50
5. 35	20. 0
5. 40	18. 0
6. 11	16. 40
6. 48	9. 0
7. 3	11. 0
7. 16	10. 30
7. 27	13. 30
8. 3	13. 40
8. 20	10. 30
8. 59	11. 45
9. 14	6. 0
9. 30	5. 30
9. 59	8. 50
10. 7	8. 25
10. 35	10. 30
11. 4	14. 30
11. 38	14. 10

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
h m	
Sept. 14	
0. 0	·1376
	(†)
1. 0	·1382*
2. 5	·1380
2. 46	·1394
3. 29	·1387
4. 16	·1395
4. 34	·1394
4. 56	·1384
5. 6	·1388
5. 29	·1381
5. 41	·1389
6. 10	·1386
6. 30	·1378
6. 56	·1391
8. 24	·1392
9. 3	·1386
9. 35	·1413
10. 24	·1392
12. 33	·1389
12. 54	·1382
13. 46	·1388
14. 12	·1384
15. 40	·1392
16. 52	·1386
18. 0	·1391
21. 35	·1376
23. 59	·1381

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m	
Sept. 14	
0. 0	·02475
4. 40	·02549
7. 26	·02545
10. 0	·02483
12. 24	·02489
13. 1	·02476
20. 14	·02464
22. 47	·02443
23. 59	·02470

Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
h m	°	°
Sept. 14		
0. 0	61 ·9	63 ·4
1. 0	62 ·1	64 ·0
2. 0	62 ·3	64 ·1
3. 0	62 ·3	64 ·1
7. 0	62 ·4	64 ·2
9. 0	61 ·6	62 ·1
21. 30	62 ·2	62 ·7

Greenwich Mean Solar Time.	Western Declination.
Sept. 14 h m	° ′ ″
12. 49	20. 18. 0
13. 4	17. 20
13. 18	17. 20
13. 40	18. 20
13. 59	17. 50
14. 20	18. 35
15. 31	16. 40
15. 45	17. 5
16. 3	16. 45
16. 37	17. 0
17. 19	16. 0
17. 29	16. 40
17. 37	15. 30
19. 43	13. 30
21. 46	17. 50
22. 5	20. 0
22. 55	21. 10
23. 9	23. 0
23. 23	21. 50
23. 40	22. 0
23. 59	23. 20
Sept. 15	
0. 0	20. 23. 20
0. 33	25. 0
1. 0	24. 0
1. 16	24. 55
2. 8	22. 5
2. 23	22. 50
2. 46	21. 50
2. 52	22. 0
3. 42	19. 40
5. 11	19. 0
5. 51	15. 10
6. 36	16. 55
6. 50	15. 50
7. 3	16. 0
7. 27	14. 0
7. 35	16. 0
8. 25	16. 30
8. 43	13. 0
8. 50	12. 50
9. 3	16. 30
9. 17	15. 20
9. 35	15. 45
10. 3	14. 10
11. 33	17. 30
11. 56	17. 0
12. 33	18. 0
13. 31	17. 10
13. 53	17. 55
17. 0	18. 0
20. 7	14. 50
21. 35	16. 0
23. 59	23. 0

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
h m	
Sept. 15	
0. 0	·1381
0. 58	·1384
1. 34	·1393
1. 52	·1388
2. 32	·1387
3. 57	·1392
4. 54	·1384
5. 7	·1390
5. 32	·1384
6. 17	·1394
6. 56	·1388
7. 28	·1394
7. 35	·1390
8. 25	·1389
8. 55	·1421
9. 40	·1392
11. 37	·1396
12. 31	·1390
17. 28	·1394
23. 6	·1380
23. 59	·1388

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m	
Sept. 15	
0. 0	·02470
4. 32	·02518
8. 7	·02503
9. 11	·02482
9. 39	·02458
15. 11	·02450
22. 10	·02358
23. 59	·02365

Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
h m	°	°
Sept. 15		
0. 30	61 ·7	63 ·3
6. 30	61 ·9	63 ·7
7. 25	61 ·8	63 ·4
9. 0	60 ·9	62 ·9
10. 30	60 ·6	62 ·6
11. 0	60 ·3	61 ·3
21. 0	59 ·9	60 ·6
22. 0	59 ·9	60 ·6
23. 0	60 ·4	61 ·3

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Sept. 16 h m s	° ′ ″	Sept. 16 h m s		Sept. 16 h m s		Sept. 16 h m s	°	°
0. 0	20. 23. 0	0. 0	·1388	0. 0	·02365	0. 0	60·8	61·8
0. 29	24. 50	0. 46	·1388	3. 53	·02415	1. 0	61·0	62·1
0. 45	23. 50	1. 6	·1394	13. 50	·02337	2. 0	61·0	62·1
1. 7	25. 0	1. 18	·1392	14. 57	·02329	3. 0	61·0	62·1
1. 17	23. 55	1. 33	·1398	15. 13	·02310	6. 0	60·0	60·9
1. 30	25. 0	1. 57	·1394	15. 28	·02332	7. 0	59·5	61·1
2. 11	25. 0	3. 15	·1399	15. 57	·02302	9. 0	59·6	60·4
2. 24	23. 30	4. 56	·1396	19. 10	·02304	21. 0	59·4	60·1
2. 49	22. 50	6. 23	·1400	23. 30	·02297	22. 0	59·6	60·3
3. 10	23. 40	6. 58	·1411	23. 59	·02299	23. 0	59·5	60·3
3. 39	22. 20	7. 41	·1405					
3. 47	23. 15	8. 22	·1407					
5. 56	20. 50	9. 54	·1400					
6. 55	20. 45	10. 7	·1404					
7. 37	21. 0	10. 28	·1399					
10. 25	19. 30	11. 16	·1402					
11. 26	15. 45	11. 31	·1398					
13. 6	20. 0	11. 39	·1417					
13. 55	16. 30	12. 20	·1402					
14. 35	19. 20	12. 32	·1406					
14. 47	17. 50	13. 0	·1402					
14. 55	20. 30	13. 14	·1409					
15. 10	15. 20	13. 30	·1405					
15. 35	19. 20	13. 43	·1411					
15. 40	17. 30	14. 1	·1402					
15. 49	18. 30		***					
16. 3	15. 10	14. 37	·1411					
16. 15	15. 0	14. 46	·1407					
17. 30	18. 30	14. 57	·1415					
18. 5	18. 50	15. 9	·1398					
18. 14	17. 30	15. 27	·1410					
18. 26	18. 0	15. 44	·1407					
18. 49	18. 10	15. 52	·1416					
19. 0	17. 0	16. 0	·1405					
19. 33	17. 50	16. 27	·1409					
19. 40	16. 5	17. 20	·1399					
20. 7	17. 15	18. 49	·1392					
20. 15	18. 50	19. 4	·1397					
20. 27	18. 0	19. 29	·1390					
20. 37	18. 0	19. 37	·1394					
20. 49	17. 0	20. 5	·1395					
20. 55	18. 30	20. 12	·1387					
21. 21	19. 50	20. 32	·1384					
21. 40	19. 15	20. 43	·1391					
23. 37	23. 30	21. 30	·1378					
23. 59	23. 0	21. 38	·1385					
		21. 50	·1378					
		23. 59	·1385					
Sept. 17 h m s		Sept. 17 h m s		Sept. 17 h m s		Sept. 17 h m s		
0. 0	20. 23. 0	0. 0	·1385	0. 0	·02299	0. 0	59·8	60·8
0. 29	26. 30	0. 12	·1391	3. 39	·02351	1. 0	59·9	61·1
0. 45	24. 0	0. 27	·1407	4. 22	·02334	2. 0	60·1	61·0
1. 13	25. 0	0. 40	·1385	5. 2	·02347	3. 0	60·1	61·0
1. 24	26. 30	1. 7	·1388	5. 30	·02335	6. 0	59·4	60·8
1. 37	25. 30		***	9. 56	·02337	6. 30	59·2	60·8
2. 10	25. 50	2. 13	·1401	10. 16	·02324	9. 0	59·1	60·4
2. 23	24. 10	2. 27	·1396	14. 20	·02342	21. 0	60·0	61·1

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Sept. 17 h m s	° ′ ″	Sept. 17 h m s		Sept. 17 h m s		Sept. 17 h m s	°	°
3. 15	20. 24. 40	3. 5	·1406	15. 24	·02293	22. 0	60·4	61·5
3. 20	22. 30	3. 16	·1398	15. 35	·02300	23. 0	60·6	62·0
3. 25	23. 40	3. 41	·1412	16. 10	·02240			
4. 0	24. 40	4. 5	·1414	16. 38	·02240			
4. 32	21. 50	4. 15	·1400	16. 59	·02217			
4. 55	21. 0	4. 26	·1391	17. 9	·02239			
5. 25	22. 0	4. 39	·1403	17. 51	·02235			
5. 58	20. 55	4. 56	·1400	18. 55	·02285			
7. 1	20. 30	5. 8	·1417	23. 22	·02338			
7. 8	19. 40	5. 20	·1405	23. 59	·02310			
7. 47	20. 50	5. 25	·1411					
8. 24	18. 30	5. 31	·1396					
8. 36	18. 30		***					
8. 49	18. 0	5. 57	·1408					
9. 5	18. 20	6. 12	·1403					
9. 18	17. 30	6. 35	·1414					
9. 30	17. 10	6. 42	·1402					
10. 0	20. 0	6. 45	·1414					
10. 39	18. 10	7. 0	·1408					
11. 40	18. 55	7. 36	·1412					
14. 9	17. 55	7. 53	·1398					
14. 29	23. 0	8. 29	·1397					
15. 7	22. 40	8. 36	·1405					
15. 25	25. 0	9. 9	·1395					
15. 44	31. 30	10. 5	·1411					
15. 59	28. 40	10. 26	·1402					
16. 5	28. 55	10. 47	·1411					
16. 18	26. 20		***					
16. 35	26. 55	11. 29	·1402					
16. 36	31. 30	11. 48	·1407					
16. 47	29. 5	12. 46	·1410					
16. 55	29. 0	12. 58	·1406					
17. 5	25. 0	14. 30	·1406					
17. 9	27. 55	14. 59	·1415					
17. 30	24. 0	15. 18	·1413					
17. 40	24. 0	15. 36	·1433					
17. 56	17. 0	15. 58	·1432					
18. 6	18. 0	16. 4	·1437					
18. 16	16. 30	16. 24	·1431					
18. 39	18. 35	16. 56	·1416					
18. 59	17. 30	17. 4	·1391					
19. 17	19. 15	17. 16	·1402					
19. 41	16. 20	17. 34	·1395					
20. 5	16. 0	17. 57	·1373					
20. 24	16. 45	18. 4	·1378					
20. 32	15. 20	18. 14	·1370					
20. 47	17. 0	19. 18	·1388					
20. 56	15. 20	19. 56	·1373					
21. 35	20. 20	20. 7	·1377					
22. 14	17. 0	20. 46	·1371					
23. 19	20. 30	20. 58	·1378					
23. 59	26. 0	21. 54	·1375					
		21. 57	·1379					
		22. 36	·1383					
		22. 53	·1378					
		23. 29	·1394					
		23. 44	·1377					
		23. 59	·1388					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Sept.21		Sept.21						
h m s	° ′ ″	h m s		h m		h m	°	°
18. 30	20. 17. 0	18. 5	·1392					
18. 41	19. 40	18. 29	·1388					
19. 12	15. 30	18. 32	·1390					
19. 24	16. 20	19. 0	·1381					
19. 46	15. 30	19. 51	·1385					
20. 9	17. 20	20. 22	·1375					
20. 45	15. 30	20. 58	·1380					
21. 20	19. 35	21. 34	·1365					
21. 38	17. 40	22. 59	·1370					
22. 0	16. 50	23. 30	·1366					
22. 14	17. 50	23. 59	·1377					
22. 27	17. 50							
22. 53	21. 10							
23. 36	20. 0							
23. 59	21. 20							
Sept.22		Sept.22		Sept.22		Sept.22		
0. 0	20. 21. 20	0. 0	·1377	0. 0	·02410	0. 20	61 ·3	63 ·3
0. 14	19. 25	0. 10	·1364	1. 53	·02470	1. 0	61 ·4	63 ·3
0. 47	18. 0	0. 32	·1376	2. 12	·02464	8. 0	61 ·2	63 ·0
0. 50	18. 50	1. 14	·1378	2. 33	·02492	8. 30	60 ·4	62 ·0
1. 10	18. 50	1. 41	·1387	3. 20	·02481	9. 0	59 ·8	61 ·4
1. 37	21. 50	2. 6	·1363	5. 41	·02505	9. 15	59 ·6	61 ·3
1. 47	23. 55	2. 36	·1384	5. 54	·02490	9. 30	59 ·6	61 ·0
1. 59	23. 30	2. 55	·1365	6. 23	·02503	21. 0	60 ·1	61 ·1
2. 4	24. 30	3. 14	·1373	6. 41	·02484	22. 0	60 ·2	60 ·3
2. 18	24. 30	3. 40	·1383	6. 55	·02497	23. 0	60 ·4	60 ·9
2. 29	21. 0	4. 0	·1386	7. 10	·02480			
2. 36	20. 0	4. 11	·1380	7. 42	·02500			
2. 45	22. 0	4. 27	·1387	8. 3	·02435			
3. 20	19. 15	4. 58	·1367	8. 20	·02389			
3. 37	21. 30	5. 4	·1372	8. 37	·02418			
3. 48	21. 0	5. 17	·1364	8. 51	·02382			
4. 0	22. 20	5. 25	·1373	9. 29	·02380			
4. 15	21. 50	5. 43	·1370	9. 35	·02350			
4. 39	23. 10	6. 20	·1405	9. 58	·02364			
4. 53	22. 10	6. 38	·1384	10. 10	·02315			
5. 10	23. 40	6. 56	·1390	10. 43	·02332			
5. 22	20. 40	7. 8	·1363	10. 58	·02323			
5. 41	19. 30	7. 23	·1372	11. 45	·02350			
5. 55	12. 10	7. 32	·1368	12. 41	·02345			
6. 1	12. 30	7. 44	·1382	12. 57	·02358			
6. 12	10. 0	7. 55	·1375	15. 30	·02335			
6. 29	15. 0	8. 6	·1405	17. 39	·02362			
6. 39	11. 0	8. 23	·1346	22. 35	·02357			
6. 59	18. 0	8. 37	·1394	23. 59	·02372			
7. 15	10. 45	8. 54	·1361					
7. 35	15. 20	9. 21	·1381					
7. 47	23. 10	9. 29	·1372					
7. 55	24. 0	9. 54	·1410					
8. 0	15. 40	10. 8	·1370					
8. 12	28. 30	10. 34	·1378					
8. 33	4. 55	10. 43	·1377					
8. 37	8. 0	11. 3	·1387					
8. 51	10. 20	11. 10	·1382					
8. 59	7. 30	11. 36	·1383					
9. 9	11. 10	12. 5	·1393					
9. 19	10. 25	12. 27	·1386					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Sept.22		Sept.22						
h m s	° ′ ″	h m s		h m		h m	°	°
9. 25	20. 14. 15	12. 36	·1377					
9. 35	8. 50	12. 45	·1380					
9. 46	13. 40	13. 8	·1372					
9. 59	22. 55		***					
10. 18	22. 0	14. 33	·1388					
10. 25	21. 0	15. 5	·1391					
10. 45	20. 50	15. 56	·1372					
10. 59	16. 0	16. 33	·1381					
11. 21	19. 0	17. 37	·1389					
11. 35	19. 0	17. 56	·1383					
11. 44	20. 10	18. 11	·1381					
12. 3	17. 50	18. 27	·1385					
12. 45	17. 0	18. 37	·1380					
13. 3	22. 0	19. 8	·1380					
13. 17	22. 0	19. 20	·1375					
13. 30	22. 50	19. 36	·1380					
13. 38	22. 0	20. 6	·1380					
13. 51	22. 40	20. 15	·1374					
14. 4	21. 10	20. 35	·1379					
14. 22	22. 50	21. 6	·1372					
14. 35	22. 30	22. 5	·1376					
14. 46	21. 15	22. 21	·1382					
14. 55	22. 0	22. 40	·1374					
15. 8	21. 0	22. 50	·1381					
15. 25	22. 10	23. 59	·1334					
15. 49	20. 50							
16. 4	21. 0							
16. 10	22. 0							
17. 8	19. 30							
17. 32	20. 0							
17. 43	21. 5							
17. 59	19. 50							
18. 25	19. 0							
18. 35	19. 55							
19. 4	18. 50							
19. 45	19. 0							
19. 55	18. 10							
20. 15	18. 20							
20. 20	17. 0							
20. 26	18. 25							
20. 50	19. 0							
21. 7	17. 20							
21. 25	17. 45							
21. 32	16. 50							
21. 50	16. 30							
22. 5	17. 0							
22. 14	16. 5							
22. 29	18. 40							
22. 48	17. 40							
23. 35	22. 0							
23. 50	20. 10							
23. 55	20. 30							
23. 59	20. 0							
Sept.23		Sept.23		Sept.23		Sept.23		
0. 0	20. 20. 0	0. 0	·1334	0. 0	·02372	0. 0	60 ·6	61 ·8
0. 12	20. 50	0. 41	·1363	0. 30	·02410	1. 0	61 ·1	62 ·3
0. 33	19. 30	1. 11	·1375	3. 54	·02450	2. 0	61 ·6	62 ·8

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Sept.23		Sept.23		Sept.23		Sept.23		
h m	° ′ ″	h m		h m		h m	°	°
0.43	20. 20. 30	1. 33	·1373	4. 57	·02457	3. 0	61 ·4	62 ·9
0.57	20. 0	2. 6	·1382	9. 52	·02436	6. 0	61 ·5	63 ·3
1. 14	21. 5	2. 32	·1383	10. 38	·02403	9. 0	61 ·0	62 ·4
1. 19	20. 40	3. 7	·1375	11. 54	·02412	9. 40	..	61 ·5
1. 36	21. 40	3. 20	·1382	12. 50	·02384	21. 0	59 ·6	60 ·5
2. 9	20. 25	3. 42	·1384	16. 4	·02384	22. 0	59 ·8	60 ·6
2. 50	21. 5	4. 11	·1376	16. 54	·02346	23. 0	60 ·1	60 ·9
3. 43	19. 20	4. 58	·1389	17. 8	·02350			
3. 54	19. 20	5. 32	·1381	17. 37	·02330			
4. 29	16. 0	6. 9	·1386	18. 0	·02321			
6. 35	17. 0	6. 57	·1385	19. 6	·02337			
6. 58	16. 15	7. 30	·1398	23. 20	·02300			
7. 11	14. 10	7. 45	·1394	23. 59	·02310			
7. 25	13. 55	7. 57	·1402					
7. 35	15. 0	8. 20	·1390					
7. 55	11. 5	8. 43	·1396					
8. 15	15. 20	9. 38	·1389					
8. 55	16. 35	10. 0	·1404					
9. 25	15. 30	10. 9	·1395					
9. 35	16. 0	10. 20	·1400					
9. 45	15. 15	10. 51	·1388					
10. 4	18. 0	11. 0	·1390					
10. 9	17. 20	11. 19	·1386					
10. 20	20. 0	11. 59	·1392					
10. 36	17. 20	12. 30	·1388					
10. 53	17. 0	13. 8	·1391					
11. 0	18. 0	13. 17	·1388					
11. 22	17. 20	15. 41	·1380					
11. 33	18. 20	16. 13	·1383					
11. 44	20. 40	16. 46	·1372					
11. 55	21. 20	17. 41	·1398					
12. 10	20. 0	18. 56	·1384					
12. 19	22. 0	19. 36	·1386					
12. 49	18. 0	20. 11	·1374					
13. 45	17. 10	20. 32	·1377					
13. 55	17. 55	20. 57	·1365					
14. 8	17. 5	22. 12	·1374					
14. 20	18. 5	23. 6	·1376					
14. 44	17. 20		(†)					
15. 18	17. 30							
15. 46	19. 0							
16. 35	25. 0							
16. 51	24. 40							
17. 7	27. 25							
17. 57	21. 10							
18. 47	18. 55							
19. 17	19. 30							
19. 30	19. 5							
19. 39	20. 30							
20. 0	18. 20							
20. 26	20. 20							
20. 40	20. 15							
20. 46	21. 0							
21. 13	20. 0							
22. 23	23. 10							
22. 45	22. 50							
23. 32	25. 35							
23. 40	25. 15							

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Sept.23								
h m	° ′ ″	h m		h m		h m	°	°
23. 53	20. 26. 30							
23. 59	26. 5							
Sept.24		Sept.24		Sept.24		Sept 24		
0. 0	20. 26. 5		(†)	0. 0	·02310	0. 0	60 ·4	61 ·4
0. 20	25. 0	0. 17	·1372	2. 0	·02370	1. 0	60 ·7	62 ·0
0. 46	27. 0	0. 27	·1378	5. 53	·02355	2. 0	60 ·5	61 ·7
1. 0	24. 30	0. 41	·1379	7. 18	·02340	3. 0	60 ·2	61 ·4
1. 39	23. 10	1. 15	·1355	9. 10	·02300	6. 0	59 ·0	60 ·3
1. 50	24. 30	1. 44	·1369	12. 58	·02320	9. 0	58 ·8	60 ·1
2. 0	24. 0	2. 27	·1381	13. 16	·02285	21. 0	58 ·8	59 ·4
2. 35	25. 50	2. 49	·1374	13. 53	·02270	22. 0	58 ·8	59 ·4
3. 0	25. 20	3. 4	·1378	16. 24	·02267	23. 0	58 ·9	59 ·6
3. 12	25. 45	3. 44	·1366	16. 50	·02280			
3. 53	23. 0	4. 16	·1379	19. 35	·02270			
4. 8	23. 10	4. 23	·1368	23. 12	·02244			
4. 25	22. 40	4. 48	·1369	23. 59	·02232			
4. 55	24. 30	6. 15	·1388					
5. 9	23. 20	6. 33	·1382					
5. 54	22. 40	6. 56	·1381					
6. 7	20. 50	7. 16	·1400					
6. 36	22. 55	7. 59	·1395					
7. 10	17. 0	8. 25	·1382					
7. 18	17. 20	9. 6	·1391					
7. 35	20. 0	10. 8	·1383					
8. 2	18. 50	10. 44	·1383					
8. 24	19. 20	10. 54	·1387					
8. 50	18. 30	11. 8	·1384					
9. 0	16. 55	12. 32	·1387					
9. 40	17. 30	12. 59	·1403					
9. 53	16. 45	13. 32	·1389					
10. 16	17. 50	14. 9	·1391					
10. 33	20. 20	15. 8	·1383					
10. 57	20. 45	15. 27	·1389					
11. 0	21. 50	15. 35	·1385					
11. 8	21. 0	15. 55	·1387					
11. 18	21. 40	16. 7	·1385					
12. 29	20. 30	16. 23	·1375					
12. 59	22. 50	17. 54	·1387					
13. 12	28. 30	18. 20	·1379					
13. 58	23. 30	18. 33	·1381					
14. 5	23. 20	19. 47	·1371					
14. 25	21. 45	21. 17	·1369					
15. 23	21. 50	21. 53	·1375					
15. 33	21. 5	22. 6	·1363					
15. 47	23. 0	23. 25	·1377					
16. 29	20. 50	23. 59	·1365					
16. 55	21. 50							
17. 7	22. 45							
18. 3	21. 50							
18. 22	22. 0							
18. 45	21. 0							
19. 29	20. 50							
19. 43	20. 0							
20. 48	20. 45							
20. 56	20. 0							
21. 51	21. 35							
22. 47	24. 30							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Sept.28 h m s	° ′ ″	Sept.28 h m s		h m		h m	°	°
9. 47	20. 13. 0	16. 14	·1400					
10. 3	11. 30	17. 21	·1407					
10. 58	17. 0	18. 0	·1400					
11. 18	15. 50	18. 21	·1404					
11. 50	15. 45	20. 57	·1389					
11. 59	16. 50	21. 22	·1393					
12. 10	16. 20	22. 14	·1383					
12. 35	18. 30	22. 59	·1382					
12. 51	17. 5		***					
13. 9	17. 30	23. 59	·1391					
13. 44	15. 30							
15. 4	21. 0							
15. 20	17. 0							
16. 6	11. 20							
16. 34	15. 0							
16. 57	16. 0							
17. 1	17. 40							
17. 29	16. 0							
18. 16	17. 55							
19. 22	15. 40							
19. 36	14. 0							
19. 47	15. 0							
19. 52	13. 30							
20. 30	14. 40							
20. 49	13. 0							
20. 59	13. 40							
21. 19	13. 0							
21. 32	14. 0							
21. 36	13. 10							
21. 45	14. 55							
22. 5	14. 0							
22. 30	15. 30							
23. 7	19. 0							
23. 59	20. 0							
Sept.29		Sept.29		Sept.29		Sept.29		
0. 0	20. 20. 0	0. 0	·1391	0. 0	·02310	0. 0	60·2	61·5
0. 20	20. 30	0. 20	·1390	1. 36	·02329	1. 0	..	61·5
0. 27	21. 50	0. 44	·1393	2. 1	·02370	5. 0	60·5	62·2
0. 45	21. 0	1. 26	·1377	2. 9	·02355	9. 0	59·7	60·6
0. 59	22. 40	1. 47	·1393	2. 36	·02383	21. 0	59·9	61·0
1. 9	21. 50	1. 53	·1384	3. 25	·02364	22. 0	60·1	61·3
1. 15	22. 5	2. 24	·1390	3. 57	·02375	23. 0	60·7	62·4
1. 36	18. 0	2. 50	·1383	10. 29	·02317			
1. 51	20. 30	3. 29	·1380	10. 55	·02306			
2. 0	17. 0	3. 54	·1393	11. 25	·02320			
2. 19	18. 0	4. 12	·1391	12. 17	·02290			
2. 30	19. 0	5. 0	·1398	12. 37	·02295			
2. 34	18. 20	6. 56	·1403	12. 54	·02251			
2. 50	21. 0	7. 43	·1413	13. 20	·02224			
5. 10	18. 0	8. 3	·1410	14. 30	·02287			
6. 55	17. 55	8. 21	·1415	23. 3	·02300			
7. 18	16. 0	9. 13	·1399	23. 59	·02322			
7. 35	13. 0	9. 18	·1404					
7. 48	14. 0	9. 45	·1400					
8. 3	11. 30	10. 34	·1409					
8. 45:	16. 5	11. 8	·1400					
9. 10	16. 10	11. 39	·1410					
9. 21	17. 0	12. 22	·1398					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometer. Of H. F. Magnet.	Of V. F. Magnet.
Sept.29 h m s	° ′ ″	Sept.29 h m s		h m		h m	°	°
10. 38	20. 12. 20	12. 59	·1414					
10. 50	12. 30	13. 20	·1401					
11. 22	18. 0	14. 9	·1398					
11. 48	19. 30	15. 10	·1412					
12. 0	18. 0	16. 12	·1402					
12. 18	25. 15	16. 40	·1410					
12. 28	27. 30	18. 33	·1399					
12. 50	23. 30	19. 0	·1402					
13. 35	13. 30	20. 8	·1388					
13. 55	16. 0	20. 33	·1391					
14. 27	16. 50	21. 28	·1383					
14. 40	15. 20	22. 10	·1384					
14. 45	16. 10	22. 30	·1391					
15. 5	15. 20	23. 4	·1375					
15. 20	16. 20	23. 18	·1379					
15. 58	16. 0	23. 27	·1373					
16. 55	19. 30		(†)					
17. 5	18. 20							
17. 24	19. 0							
17. 27	20. 30							
17. 35	19. 20							
20. 17	18. 20							
20. 46	16. 0							
21. 3	18. 30							
21. 10	17. 20							
22. 13	15. 0							
22. 39	18. 30							
23. 18	19. 30							
23. 38	18. 20							
23. 59	19. 30							
Sept.30		Sept.30		Sept.30		Sept.30		
0. 0	20. 19. 30		(†)	0. 0	·02322	0. 0	60·8	62·4
0. 50	22. 0	0. 18	·1379	4. 35	·02385	1. 0	61·1	63·1
1. 0	21. 45	0. 50	·1384	9. 20	·02359	2. 0	61·0	62·9
2. 6	21. 20	1. 54	·1384	9. 50	·02336	3. 0	61·2	62·3
	(†)		(†)	10. 10	·02340	4. 0	61·4	63·0
3. 15	20. 0	3. 3	·1396	10. 26	·02328	6. 0	60·9	62·0
3. 35	20. 40		***	11. 59	·02335	9. 0	59·9	61·4
	***	6. 31	·1406	17. 45	·02310	9. 30	59·8	60·7
7. 35	16. 0	7. 47	·1404	20. 40	·02270	21. 0	59·2	60·2
9. 8	18. 40	8. 59	·1395	23. 3	·02257	22. 0	59·2	60·2
9. 25	12. 5	9. 12	·1402	23. 59	·02190	23. 0	59·4	60·3
10. 12	18. 30	9. 32	·1419					
10. 55	17. 45	10. 0	·1402					
13. 33	19. 50	10. 12	·1407					
17. 43	21. 30	10. 24	·1403					
18. 9	23. 50	10. 44	·1407					
18. 53	21. 40	11. 23	·1397					
20. 45	20. 55	17. 12	·1407					
21. 33	19. 30	17. 45	·1402					
21. 47	21. 0	18. 29	·1410					
22. 4	21. 10	18. 50	·1405					
23. 20	26. 30	20. 31	·1393					
23. 59	26. 30	20. 50	·1386					
		22. 23	·1383					
		23. 14	·1370					
		23. 59	·1379					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
Oct. 1		Oct. 1		Oct. 1		Oct. 1		
h m s	° ′ ″	h m s		h m s		h m s	°	°
0. 0	20. 26. 30	0. 0	·1379	0. 0	·02190	0. 0	60·0	61·0
0. 20	26. 30	0. 10	·1381	2. 43	·02242	1. 0	59·8	61·0
0. 50	24. 40	0. 30	·1374	7. 17	·02225	2. 0	59·8	61·0
1. 56	27. 0	1. 10	·1393	7. 51	·02236	3. 0	59·6	60·9
2. 21	26. 0	2. 49	·1398	9. 54	·02190	6. 0	..	60·3
2. 45	27. 0	3. 10	·1390	10. 23	·02174	9. 0	58·9	60·0
2. 55	26. 30	4. 14	·1402	10. 33	·02180	21. 0	58·8	59·6
3. 3	27. 0	4. 52	·1400	10. 47	·02160	22. 0	58·3	59·1
3. 21	25. 40	5. 55	·1409	12. 46	·02183	23. 0	58·9	59·7
3. 58	25. 40	6. 28	·1407	13. 15	·02151			
5. 55	22. 30	6. 30	·1396	14. 56	·02170			
6. 26	22. 5	7. 6	·1391	18. 28	·02177			
6. 57	22. 50	7. 27	·1383	21. 18	·02144			
7. 39	16. 50	8. 15	·1392	23. 32	·02135			
8. 21	21. 5	8. 35	·1386	23. 59	·02140			
9. 7	20. 5	9. 11	·1389					
9. 30	21. 40	10. 24	·1396					
9. 40	23. 40	10. 37	·1405					
9. 48	23. 0	11. 0	·1397					
9. 55	25. 0	11. 5	·1398					
10. 18	21. 0	11. 30	·1393					
10. 33	25. 20	12. 26	·1395					
11. 8	20. 0	12. 50	·1406					
11. 54	20. 50	13. 18	·1394					
12. 12	20. 0	17. 11	·1396					
12. 49	28. 10	17. 30	·1393					
13. 20	21. 15	18. 20	·1396					
13. 36	21. 10	20. 10	·1380					
14. 10	19. 30	20. 44	·1386					
15. 3	19. 30	23. 26	·1388					
16. 5	20. 25	23. 59	·1391					
16. 15	21. 5							
16. 29	20. 50							
17. 40	21. 30							
18. 4	20. 50							
18. 20	21. 10							
19. 15	19. 20							
19. 46	19. 55							
20. 25	23. 25							
21. 20	20. 0							
22. 28	20. 30							
23. 59	22. 0							
Oct. 2		Oct. 2		Oct. 2		Oct. 2		
0. 0	20. 22. 0	0. 0	·1391	0. 0	·02140	0. 0	59·0	60·0
0. 14	23. 30	1. 27	·1388	3. 17	·02182	1. 0	59·2	60·3
0. 50	23. 50	2. 57	·1400	6. 33	·02200	2. 0	59·2	60·5
3. 20	23. 20	3. 26	·1394	7. 23	·02231	3. 0	59·2	60·5
3. 51	22. 0	4. 41	·1398	7. 36	·02250	6. 0	59·5	61·3
4. 35	21. 25	4. 56	·1410	8. 33	·02210	9. 0	59·6	61·4
4. 45	20. 50		***	8. 48	·02232	21. 0	58·6	59·4
5. 20	21. 50	5. 33	·1411	9. 12	·02200	22. 0	58·6	59·4
6. 11	20. 40	6. 10	·1400	9. 29	·02205	23. 0	58·8	59·5
6. 25	18. 30	6. 16	·1404	9. 51	·02185			
6. 30	18. 0	6. 40	·1380	10. 37	.02215			
7. 5	6. 5	7. 3	·1386	10. 59	·02180			
7. 27	3. 40	7. 10	·1383	11. 20	·02110			
7. 38	9. 0	7. 59	·1397	11. 35	·02120			

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Oct. 2		Oct. 2		Oct. 2				
h m s	° ′ ″	h m s		h m s		h m s	°	°
8. 0	20. 13. 50	8. 1	·1394	12. 0	·02060			
8. 25.	15. 50	8. 20	·1400	12. 25	·02110			
8. 44	14. 15	8. 35	·1382	13. 13	·02060			
8. 59	15. 50	9. 0	·1398	14. 2	·02069			
9. 27	8. 0	9. 10	·1379	14. 25	·02100			
9. 33	8. 30	9. 23	·1381	14. 48	·02100			
9. 45	7. 0	9. 30	·1376	15. 3	·02120			
9. 59	11. 40	9. 43	·1385	15. 47	·02122			
10. 10	12. 0	10. 4	·1370	16. 12	·02080			
10. 20	11. 5	10. 30	·1381	16. 57	·02080			
10. 56	12. 50	10. 38	·1393	17. 8	·02100			
11. 5	4. 30	10. 57	·1382	17. 30	·02099			
11. 12	6. 50	11. 6	·1396	18. 47	·02163			
11. 20	6. 0	11. 22	·1380	21. 32	·02160			
11. 30	20. 8. 5	11. 50	·1410	22. 51	·02183			
11. 45	19. 58. 0	12. 7	·1395	23. 18	·02175			
11. 58	19. 56. 30	12. 23	·1402	23. 59	·02160			
12. 38	20. 12. 50	12. 50	·1381					
13. 19	4. 0	13. 3	·1392					
13. 53	18. 50	13. 7	·1381					
14. 35	21. 0	13. 10	·1387					
15. 2	17. 25	13. 17	·1382					
15. 19	19. 55	13. 29	·1393					
15. 29	19. 5	13. 45	·1376					
16. 2	29. 20	13. 50	·1381					
16. 24	21. 40	13. 56	·1375					
16. 37	23. 55	14. 32	·1393					
16. 46	23. 30	14. 41	·1390					
17. 0	27. 55	15. 0	·1395					
17. 9	26. 30	15. 16	·1394					
17. 24	30. 0	15. 55	·1408					
17. 50	22. 55	16. 47	·1363					
18. 8	22. 55	17. 17	·1383					
18. 19	20. 50	17. 30	·1379					
18. 29	22. 0	18. 4	·1380					
18. 36	19. 25	18. 14	·1386					
18. 49	19. 5	18. 23	·1379					
18. 50	18. 30	18. 35	·1379					
18. 54	21. 20	18. 39	·1387					
19. 3	19. 30	18. 47	·1378					
19. 40	18. 50	19. 0	·1386					
19. 48	19. 5	19. 42	·1378					
19. 55	17. 0	19. 58	·1388					
20. 18	21. 50	20. 17	·1368					
20. 23	24. 0	21. 13	·1343					
20. 29	22. 0	21. 28	·1319					
20. 43	21. 20	21. 43	·1326					
20. 58	22. 0	21. 57	·1316					
21. 0	20. 50	23. 20	·1372					
21. 6	22. 10	23. 59	·1352					
21. 23	24. 25							
21. 27	24. 5							
21. 38	25. 30							
21. 50	24. 25							
21. 57	27. 20							
22. 5	25. 0							
22. 10	26. 20							
22. 21	24. 30							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Oct. 6 h m s	° ′ ″	Oct. 6 h m s		Oct. 6 h m s		Oct. 6 h m s	°	°
2. 48	20. 22. 20	1. 50	·1387	3. 55	·02220	21. 0	60·7	62·0
2. 59	21. 0	2. 6	·1397	4. 17	·02196	22. 0	60·4	62·0
3. 15	10. 50	2. 33	·1395	6. 15	·02168	23. 0	59·7	61·3
3. 26	10. 30	3. 12	·1380	8. 5	·02160			
3. 30	12. 0	3. 25	·1395	8. 19	·02150			
3. 38	9. 0	3. 33	·1385	11. 58	·02176			
3. 55	15. 50	3. 58	·1408	13. 52	·02178			
4. 4	16. 40	4. 10	·1396	17. 57	·02212			
4. 20	17. 0	4. 17	·1398	20. 14	·02231			
4. 35	14. 0	4. 28	·1386	23. 3	·02206			
4. 40	15. 10	4. 35	·1391	23. 59	·02195			
4. 53	15. 0	4. 49	·1381					
5. 2	17. 0	5. 5	·1388					
5. 55	18. 0	5. 15	·1386					
6. 7	17. 0	5. 27	·1392					
6. 17	17. 55	5. 50	·1395					
6. 30	15. 55	6. 19	·1392					
7. 5	15. 50	7. 0	·1407					
7. 25	13. 0	7. 12	·1398					
7. 31	10. 5	7. 37	·1422					
8. 7	18. 45	7. 50	·1408					
8. 21	15. 30	8. 5	·1411					
8. 37	17. 0	8. 17	·1401					
8. 47	16. 20	8. 33	·1403					
9. 3	17. 20	8. 40	·1397					
9. 18	16. 0	8. 57	·1403					
10. 25	17. 5	10. 9	·1396					
10. 39	19. 0	10. 38	·1403					
11. 19	18. 20	11. 42	·1395					
11. 53	20. 40	12. 21	·1403					
12. 5	19. 25	12. 59	·1401					
12. 18	20. 50	13. 20	·1404					
12. 35	18. 40	14. 20	·1396					
13. 17	20. 50	15. 30	·1400					
14. 9	17. 30	16. 37	·1395					
15. 11	18. 0	17. 6	·1400					
15. 45	16. 30	21. 40	·1386					
16. 25	18. 0	22. 27	·1388					
16. 43	16. 30	23. 59	·1400					
17. 19	17. 0							
19. 48	15. 55							
21. 48	17. 30							
23. 21	21. 25							
	(†)							
Oct. 7		Oct. 7		Oct. 7		Oct. 7		
	(†)	0. 0	·1400	0. 0	·02195	0. 0	59·7	61·5
0. 10	20. 22. 50	0. 40	·1402	3. 53	·02190	1. 0	59·7	60·9
0. 59	23. 20	1. 10	·1398	6. 31	·02220	2. 0	59·5	60·5
1. 19	22. 10	2. 53	·1400	11. 13	·02170	3. 0	59·1	60·2
2. 2	22. 0	3. 32	·1395	12. 20	·02180	6. 0	59·8	61·1
2. 39	20. 35	4. 27	·1395	19. 36	·02141	9. 0	59·6	60·6
3. 15	20. 15	5. 17	·1390	22. 55	·02090	21. 0	58·7	59·0
3. 50	18. 30	5. 34	·1394	23. 59	·02096	22. 0	59·0	59·1
4. 31	18. 30	6. 14	·1390			23. 0	59·0	59·1
5. 29	16. 0	6. 47	·1403					
6. 4	18. 55	7. 0	·1398					
6. 18	18. 30	7. 11	·1402					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Oct. 7 h m s	° ′ ″	Oct. 7 h m s		h m s		h m s	°	°
6. 25	20. 16. 0	7. 46	·1396					
6. 33	16. 5	8. 12	·1400					
6. 45	11. 0	10. 23	·1400					
6. 55	11. 30	10. 50	·1409					
7. 3	11. 0	11. 35	·1398					
7. 22	15. 0	11. 58	·1397					
7. 42	17. 5	12. 22	·1401					
10. 42	17. 30	14. 51	·1399					
10. 53	18. 55	15. 34	·1402					
11. 10	17. 30	16. 46	·1399					
12. 15	18. 20	17. 14	·1394					
12. 29	20. 0	18. 42	·1398					
12. 48	19. 10	19. 35	·1394					
14. 20	18. 40	20. 36	·1397					
14. 38	19. 0	20. 47	·1393					
14. 43	18. 50	21. 1	·1396					
15. 14	19. 0	21. 25	·1386					
16. 3	17. 30	21. 38	·1397					
16. 27	18. 0	21. 45	·1389					
16. 49	17. 30	21. 54	·1392					
17. 20	18. 0	22. 1	·1382					
17. 30	18. 0	22. 10	·1387					
17. 47	19. 30	22. 15	·1383					
18. 2	19. 15	22. 19	·1389					
18. 17	20. 25	22. 28	·1379					
18. 29	20. 25	22. 40	·1380					
18. 40	19. 30	22. 56	·1386					
20. 18	18. 30	23. 4	·1382					
20. 55	16. 10	23. 59	·1383					
21. 14	17. 10							
21. 24	17. 0							
21. 39	21. 30							
21. 49	21. 0							
21. 59	22. 0							
22. 5	21. 20							
22. 12	23. 0							
22. 17	22. 0							
22. 21	23. 0							
22. 27	22. 0							
22. 35	22. 0							
22. 40	23. 0							
22. 47	22. 50							
23. 4	25. 50							
23. 10	24. 50							
23. 49	28. 0							
23. 59	28. 20							
Oct. 8		Oct. 8		Oct. 8		Oct. 8		
0. 0	20. 28. 20	0. 0	·1383	0. 0	·02096	0. 0	59·1	59·4
0. 5	26. 30	0. 11	·1392	1. 30	·02160	1. 0	59·2	59·8
0. 51	30. 0	0. 40	·1395	2. 15	·c2215	2. 0	59·2	59·9
0. 59	33. 0	0. 48	·1390	2. 50	·02180	3. 0	59·2	59·9
1. 2	31. 30	0. 57	·1399	3. 0	·02205	5. 0	59·2	60·0
1. 11	31. 20	1. 10	·1387	4. 30	·02170	6. 0	59·3	60·1
1. 49	43. 45	1. 27	·1404	9. 40	·02170	7. 0	59·3	60·3
2. 0	39. 30	1. 41	·1389	11. 50	·02180	8. 0	59·3	60·3
2. 20	33. 0	1. 53	·1404	16. 21	·02150	9. 0	59·4	60·3
2. 28	33. 0	2. 0	·1397	22. 32	·02082	21. 0	58·8	58·3

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Oct. 8		Oct. 8		Oct. 8		Oct. 8		
h m s	° ′ ″	h m s		h m s		h m s	°	°
2. 45	20. 26. 0	2. 2	·1406	23. 31	·02095	22. 0	58·9	59·0
2. 59	29. 30	2. 20	·1387		(†)	23. 0	59·2	59·4
3. 10	30. 0	2. 28	·1393					
3. 19	28. 0	2. 40	·1381					
3. 21	28. 5	3. 2	·1406					
3. 29	27. 0	3. 15	·1398					
3. 41	26. 30	3. 16	·1402					
3. 55	27. 30	3. 33	·1398					
4. 16	25. 0	4. 0	·1403					
4. 22	26. 30	4. 20	·1400					
4. 33	22. 55	4. 30	·1393					
5. 12	24. 40	5. 6	·1404					
6. 50	19. 30	5. 21	·1396					
9. 59	17. 0	5. 57	·1403					
10. 10	17. 10	6. 3	·1397					
11. 23	16. 40	6. 15	·1404					
11. 34	17. 30	6. 38	·1400					
12. 2	17. 0		***					
12. 22	17. 30	7. 32	·1409					
14. 7	17. 30	7. 42	·1382					
14. 30	16. 20	7. 57	·1404					
15. 41	17. 0	8. 2	·1397					
15. 58	19. 0	8. 12	·1407					
16. 39	17. 30	8. 18	·1387					
18. 48	16. 10	8. 55	·1400					
20. 53	16. 10	9. 59	·1394					
22. 0	19. 0	13. 40	·1393					
22. 9	20. 0	14. 34	·1396					
22. 18	20. 0	15. 30	·1389					
22. 48	22. 30		(†)					
23. 0	22. 10	20. 29	·1388					
23. 5	23. 50	21. 6	·1382					
23. 30	24. 0	22. 0	·1382					
23. 40	26. 30	22. 21	·1385					
23. 59	25. 0	22. 51	·1379					
		23. 32	·1394					
		23. 59	·1394					
Oct. 9		Oct. 9		Oct. 9		Oct. 9		
0. 0	20. 25. 0	0. 0	·1394		(†)	0. 0	59·4	60·0
0. 17	23. 30	1. 25	·1401	1. 0	·02117*	1. 0	59·7	60·8
0. 20	24. 30	3. 27	·1398	1. 30	·02147	2. 0	59·5	60·5
0. 29	24. 0	5. 27	·1394	3. 32	·02190	3. 0	59·5	60·5
0. 37	24. 0	8. 47	·1394	8. 29	·02235	6. 0	59·9	61·2
1. 16	22. 0	9. 6	·1399	19. 30	·02250	7. 0	59·9	61·3
1. 35	22. 5	9. 53	·1398	22. 5	·02220	8. 0	59·9	61·3
1. 39	21. 40	10. 18	·1393	23. 59	·02243	9. 0	59·9	61·3
3. 30	17. 50	11. 9	·1398			21. 0	60·6	61·7
5. 50	17. 0	13. 59	·1390			22. 0	60·4	61·3
6. 13	17. 30	14. 14	·1395			23. 0	60·4	61·3
9. 1	16. 10	14. 36	·1391					
9. 50	17. 0	16. 2	·1392					
10. 3	16. 30	16. 54	·1396					
13. 59	15. 55	18. 40	·1396					
14. 12	16. 50	20. 57	·1385					
15. 10	16. 20	22. 21	·1387					
16. 49	17. 25	22. 42	·1382					
20. 38	15. 30	23. 4	·1389					

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Oct. 9		Oct. 9						
h m s	° ′ ″	h m s		h m		h m	°	°
21. 23	20. 16. 0	23. 59	·1385					
22. 34	19. 0							
22. 48	18. 0							
23. 10	21. 30							
23. 34	22. 0							
23. 43	23. 30							
23. 59	22. 0							
Oct. 10		Oct. 10		Oct. 10		Oct. 10		
0. 0	20. 22. 0	0. 0	·1385	0. 0	·02243	0. 0	60·4	61·5
0. 6	21. 55		***	0. 59	·02252	1. 0	60·5	61·7
0. 33	24. 40	3. 20	·1409	1. 33	·02241	3. 0	60·3	61·5
0. 43	24. 10	3. 42	·1419	3. 7	·02260	6. 0	60·3	62·0
0. 48	26. 30	4. 16	·1392	3. 31	·02279	7. 0	60·3	61·8
0. 59	24. 0	4. 26	·1399	3. 49	·02277	8. 0	60·4	61·7
1. 4	26. 20	5. 11	·1369	5. 19	·02360	9. 0	60·3	61·6
1. 45	22. 25	5. 37	·1393	5. 30	·02400	21. 0	58·9	58·5
2. 58	22. 10	5. 45	·1379	5. 40	·02408	22. 0	58·5	58·1
3. 20	23. 0	5. 50	·1384	5. 50	·02370	23. 0	58·4	57·5
3. 35	25. 50	6. 5	·1361	6. 19	·02382			
4. 2	27. 0	6. 20	·1388	7. 16	·02340			
4. 19	22. 30	6. 28	·1382	9. 51	·02280			
4. 30	24. 30	6. 50	·1389	21. 30	·02123			
4. 45	26. 0	7. 6	·1379	23. 59	·02076			
4. 55	24. 30	7. 20	·1384					
5. 5	25. 0	7. 40	·1384					
5. 21	20. 0	8. 11	·1393					
5. 28	19. 55	9. 11	·1396					
5. 35	23. 0	11. 26	·1389					
5. 45	15. 0	12. 29	·1395					
5. 53	16. 55	12. 51	·1391					
6. 15	1. 0	16. 26	·1395					
6. 24	6. 0	17. 3	·1399					
6. 38	10. 20	17. 50	·1394					
7. 3	18. 0	19. 0	·1397					
7. 12	17. 35	20. 14	·1391					
7. 23	18. 30	20. 35	·1380					
7. 43	17. 30	21. 12	·1378					
7. 51	18. 10	21. 47	·1383					
8. 21	17. 30		(†)					
8. 53	18. 0	23. 59	·1392					
10. 9	16. 50							
10. 19	17. 10							
10. 32	17. 0							
10. 50	17. 35							
11. 3	17. 0							
12. 36	17. 0							
13. 3	17. 30							
13. 59	17. 30							
17. 5	16. 0							
17. 41	16. 50							
18. 15	18. 50							
18. 52	18. 30							
19. 8	19. 5							
19. 35	17. 0							
20. 5	16. 35							
21. 12	19. 10							
21. 45	18. 20							
	(†)							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Oct. 16								
h m	° ′ ″	h m		h m		h m	°	°
23. 27	20. 24. 10							
23. 35	23. 30							
23. 48	23. 10							
23. 59	24. 0							
Oct. 17		Oct. 17		Oct. 17		Oct. 17		
0. 0	20. 24. 0	0. 0	·1392	0. 0	·02199	0. 0	60 ·7	62 ·1
0. 2	25. 0	0. 3	·1385	3. 10	·02303	1. 0	60 ·6	62 ·5
0. 8	23. 45	0. 50	·1393	3. 26	·02288	2. 0	60 ·8	62 ·7
0. 28	24. 30	1. 22	·1395	3. 58	·02300	3. 0	60 ·9	62 ·9
0. 41	23. 5	1. 32	·1388	5. 24	·02269	5. 0	60 ·3	61 ·2
1. 31	24. 5	1. 59	·1393	6. 32	·02260	6. 0	60 ·3	61 ·3
1. 54	22. 0	2. 38	·1381	7. 2	·02275	7. 0	60 ·1	61 ·2
2. 5	23. 30	3. 12	·1397	8. 0	·02226	8. 0	59 ·7	60 ·8
2. 27	23. 0	3. 30	·1383	10. 8	·02218	9. 0	60 ·1	61 ·1
2. 34	23. 0	3. 59	·1389	11. 12	·02196	21. 0	59 ·8	60 ·7
2. 57	17. 55	4. 30	·1384	11. 34	·02220	22. 0	59 ·9	60 ·5
3. 25	20. 30	5. 6	·1394	12. 52	·02180	23. 0	59 ·9	60 ·8
3. 36	20. 45	5. 33	·1388	15. 55	·02220			
3. 52	19. 10	6. 11	·1395	19. 58	·02200			
4. 24	23. 30	6. 43	·1383	21. 12	·02180			
4. 45	21. 25	7. 18	·1430	23. 0	·02178			
4. 53	21. 20	8. 2	·1383	23. 59	·02198			
5. 37	19. 0	8. 20	·1394					
5. 55	14. 30	8. 37	·1395					
6. 27	16. 55	8. 59	·1407					
7. 0	0. 0	9. 26	·1395					
7. 28	8. 40	10. 32	·1401					
7. 56	13. 40	10. 52	·1397					
8. 10	11. 0	11. 2	·1399					
8. 24	14. 5	11. 20	·1389					
8. 49	12. 30	11. 49	·1408					
9. 5	13. 0	13. 0	·1391					
9. 10	11. 30	13. 31	·1398					
9. 53	13. 0	14. 0	·1394					
10. 10	15. 50	15. 30	·1390					
10. 24	15. 0	16. 34	·1396					
10. 35	16. 0	16. 50	·1390					
10. 45	15. 0	17. 50	·1396					
10. 55	16. 0		***					
11. 13	13. 0	18. 26	·1395					
11. 40	19. 55		***					
11. 53	20. 30	19. 8	·1373					
12. 11	19. 0		***					
12. 33	21. 25	20. 7	·1380					
12. 53	19. 35	20. 30	·1372					
13. 20	20. 30	20. 44	·1376					
13. 59	18. 0	21. 50	·1365					
14. 30	18. 30	22. 6	·1370					
14. 43	19. 0	22. 20	·1364					
15. 1	16. 0	22. 30	·1367					
15. 26	18. 20		***					
15. 43	18. 5	23. 18	·1358					
16. 3	19. 55	23. 30	·1364					
17. 49	19. 0	23. 57	·1360					
17. 58	19. 30	23. 59	·1370					
18. 30	18. 0							
18. 45	21. 5							

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Oct. 17								
h m	° ′ ″	h m		h m		h m	°	°
18. 51	20. 19. 30							
19. 17	17. 55							
19. 29	22. 10							
19. 53	20. 0							
20. 34	22. 0							
20. 40	21. 10							
20. 49	22. 0							
21. 18	20. 0							
21. 47	21. 10							
21. 58	20. 5							
22. 34	22. 0							
22. 50	25. 50							
23. 0	23. 20							
23. 6	24. 0							
23. 21	23. 30							
23. 38	26. 30							
23. 49	25. 10							
23. 59	26. 30							
Oct. 18		Oct. 18		Oct. 18		Oct. 18		
0. 0	20. 26. 30	0. 0	·1370	0. 0	·02198	0. 0	60 ·3	61 ·3
0. 23	25. 0	0. 42	·1391	2. 28	·02279	1. 0	60 ·4	61 ·8
0. 28	25. 30		***	3. 15	·02245	2. 0	60 ·6	61 ·4
0. 55	24. 50	1. 19	·1393	3. 36	·02250	3. 0	60 ·2	61 ·3
1. 21	27. 5	1. 28	·1387	4. 58	·02212	4. 30	59 ·6	60 ·2
1. 28	26. 30	1. 40	·1392	6. 39	·02223	5. 0	60 ·2	61 ·7
1. 42	32. 10	1. 51	·1370	7. 43	·02209	6. 0	60 ·4	61 ·3
1. 49	28. 30	2. 5	·1360	8. 56	·02220	7. 0	59 ·6	61 ·2
1. 56	28. 50	2. 20	·1379	9. 14	·02182	8. 0	59 ·9	61 ·6
2. 10	19. 30	2. 45	·1393	9. 30	·02190	9. 0	60 ·1	61 ·7
2. 28	17. 0	3. 0	·1384	9. 43	·02175	21. 0	59 ·4	60 ·2
2. 57	22. 40	3. 30	·1394	11. 23	·02200	22. 0	59 ·2	59 ·4
3. 18	21. 0	3. 44	·1383	14. 0	·02184	23. 0	59 ·2	59 ·2
3. 40	22. 50	4. 6	·1386	15. 51	·02190			
3. 52	22. 0	4. 22	·1398	20. 6	·02164			
4. 2	22. 0	4. 41	·1383	21. 43	·02142			
4. 18	20. 0	5. 12	·1395		(†)			
4. 40	20. 50	6. 2	·1392					
4. 52	17. 30	6. 30	·1402					
5. 12	17. 0	7. 7	·1393					
5. 30	19. 0	7. 26	·1398					
6. 19	11. 0	8. 12	·1386					
7. 13	18. 0	8. 43	·1396					
8. 15	15. 20	8. 59	·1426					
8. 29	15. 50	9. 12	·1415					
8. 48	10. 0	9. 32	·1421					
9. 2	14. 30	9. 51	·1404					
9. 18	12. 0	10. 1	·1404					
9. 41	18. 10	10. 12	·1396					
9. 55	15. 5	10. 18	·1402					
10. 28	13. 0	10. 42	·1391					
10. 32	14. 0	11. 13	·1390					
10. 37	13. 20	11. 38	·1398					
11. 0	16. 0	12. 26	·1390					
11. 5	17. 50	13. 6	·1396					
11. 38	19. 0	13. 17	·1393					
11. 55	18. 0	13. 50	·1398					
12. 12	21. 0	14. 22	·1390					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Oct. 18		Oct. 18						
h m	° ′ ″	h m		h m		h m	°	°
13. 2	20. 20. 0	14. 56	·1398					
13. 20	22. 0	15. 32	·1393					
13. 50	18. 55	16. 27	·1403					
14. 7	20. 30	17. 57	·1393					
14. 18	19. 40		***					
14. 28	19. 50	20. 45	·1391					
14. 36	20. 50	21. 28	·1369					
15. 9	18. 30	21. 38	·1375					
16. 5	19. 0		(†)					
16. 28	17. 30							
16. 35	18. 0							
16. 50	17. 0							
17. 20	18. 0							
17. 49	18. 30							
18. 0	17. 55							
18. 13	19. 0							
18. 21	18. 15							
18. 36	18. 55							
19. 59	17. 0							
20. 11	18. 10							
	***							
20. 37	17. 0							
20. 53	19. 5							
21. 3	19. 0							
21. 41	20. 10							
	(†)							
Oct. 19		Oct. 19		Oct. 19		Oct. 19		
	(†)		(†)	0. 0	·02110	0. 0	59 ·2	59 ·2
0. 19	20. 20. 55	0. 31	·1397	1. 9	·02113	1. 0	59 ·4	60 ·3
1. 3	22. 0	1. 47	·1384	2. 6	·02150	2. 0	59 ·4	60 ·4
1. 59	21. 50	2. 0	·1388	7. 23	·02170	3. 0	59 ·4	59 ·7
2. 9	20. 0		(†)	10. 33	·02170	6. 0	59 ·7	61 ·1
	(†)	3. 10	·1398	11. 13	·02152	7. 0	59 ·7	61 ·1
3. 10	19. 35	4. 41	·1395	15. 26	·02158	8. 0	59 ·7	61 ·2
5. 1	19. 0	5. 1	·1399	20. 10	·02137	9. 0	59 ·7	61 ·0
5. 42	17. 20	6. 8	·1394	23. 59	·02140	21. 30	59 ·6	60 ·3
5. 54	16. 0	6. 46	·1400					
6. 19	16. 30	7. 45	·1399					
6. 50	18. 35	8. 21	·1404					
7. 35	17. 0	9. 17	·1398					
8. 30	18. 0	9. 31	·1400					
8. 39	17. 25	10. 22	·1392					
9. 3	17. 30	10. 57	·1428					
9. 54	13. 55	11. 27	·1400					
10. 10	14. 55	11. 33	·1407					
10. 20	14. 0	12. 12	·1405					
10. 30	15. 50	12. 57	·1388					
10. 35	12. 0	13. 33	·1394					
10. 55	15. 5	14. 55	·1395					
11. 18	14. 25	15. 20	·1384					
11. 35	19. 30	16. 31	·1398					
12. 3	15. 0	17. 16	·1398					
12. 31	14. 20	17. 27	·1390					
12. 57	18. 10	18. 4	·1394					
13. 56	19. 50	18. 14	·1388					
14. 23	17. 30		***					
14. 45	18. 0	20. 3	·1393					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Oct. 19		Oct. 19						
h m	° ′ ″	h m		h m		h m	°	°
14. 54	20. 17. 25	21. 7	·1371					
15. 3	19. 0	21. 54	·1370					
15. 20	19. 5	22. 12	·1360					
16. 15	23. 20	22. 45	·1375					
17. 10	19. 0	23. 59	·1385					
17. 33	21. 5							
18. 10	20. 5							
18. 20	21. 25							
18. 28	20. 5							
18. 39	20. 30							
19. 47	17. 30							
20. 29	20. 10							
21. 28	20. 30							
22. 11	25. 40							
22. 37	22. 30							
23. 35	25. 20							
23. 59	24. 20							
Oct. 20		Oct. 20		Oct. 20		Oct. 20		
0. 0	20. 24. 20	0. 0	·1385	0. 0	·02140	0. 0	59 ·6	60 ·8
0. 15	23. 30	1. 44	·1396	1. 50	·02149	0. 20	59 ·6	60 ·8
0. 58	24. 40	2. 19	·1394	3. 0	·02170	1. 0	59 ·4	60 ·5
1. 5	24. 0	2. 50	·1362	3. 58	·02235	8. 0	59 ·8	61 ·5
2. 34	23. 55	3. 9	·1373	5. 20	·02205	21. 0	61 ·4	63 ·0
2. 41	23. 0	3. 15	·1367	8. 50	·02182	22. 0	60 ·6	62 ·6
2. 47	23. 30	4. 11	·1381	13. 32	·02210	23. 0	60 ·6	61 ·6
3. 29	6. 30	4. 21	·1378	15. 3	·02195			
4. 6	10. 40	4. 58	·1378	16. 4	·02200			
4. 31	17. 0	5. 18	·1387	20. 10	·02197			
5. 12	20. 10	5. 49	·1386	22. 3	·02200			
5. 31	20. 10	6. 19	·1394	23. 10	·02179			
6. 2	17. 15	6. 29	·1390		(†)			
6. 11	17. 10	6. 40	·1396					
6. 21	15. 15	6. 59	·1390					
6. 39	15. 0	9. 22	·1397					
7. 11	17. 0	13. 35	·1392					
7. 21	16. 30	14. 2	·1388					
8. 1	18. 20	15. 12	·1394					
8. 15	18. 0	15. 50	·1392					
8. 29	18. 50	16. 47	·1402					
8. 45	18. 20	17. 20	·1386					
12. 0	18. 20	17. 56	·1391					
13. 33	18. 50	18. 16	·1390					
13. 41	19. 55	18. 41	·1394					
13. 54	19. 5	19. 1	·1389					
14. 3	20. 55	19. 15	·1392					
14. 23	20. 10	20. 28	·1378					
14. 38	23. 0	21. 7	·1358					
14. 48	23. 40	21. 30	·1370					
15. 25	19. 0	22. 1	·1378					
15. 43	18. 0	23. 18	·1373					
16. 0	18. 0	23. 52	·1376					
16. 13	19. 0	23. 59	·1376					
16. 29	18. 0							
17. 0	19. 15							
17. 54	24. 10							
18. 14	23. 0							
18. 23	21. 25							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Oct. 25		Oct. 25						
h m	° ′ ″	h m		h m		h m	°	°
15. 6	20. 19. 10	12. 30	·1398					
	***	12. 48	·1392					
16. 15	17. 25	13. 39	·1397					
	***	13. 49	·1393					
17. 54	19. 10	14. 2	·1398					
18. 13	17. 40	15. 15	·1395					
18. 37	18. 50	15. 47	·1397					
18. 43	17. 50	16. 1	·1403					
19. 18	18. 30	16. 10	·1398					
20. 40	20. 55	16. 28	·1402					
20. 46	21. 50	16. 38	·1396					
21. 19	23. 50	18. 4	·1394					
21. 58	22. 10	18. 32	·1399					
	(†)	18. 40	·1394					
23. 19	21. 50	19. 5	·1402					
23. 59	24. 5	19. 44	·1395					
		20. 38	·1378					
		21. 15	·1386					
		21. 50	·1384					
			(†)					
Oct. 26		Oct 26		Oct. 26		Oct. 26		
0. 0	20. 24. 5		(†)	0. 0	·02142	0. 0	60 ·5	61 ·1
0. 31	21. 0	0. 12	·1386	2. 55	·02175	1. 0	60 ·7	61 ·7
1. 35	21. 15	0. 28	·1393	2. 57	·02157	2. 0	60 ·5	61 ·3
4. 6	19. 0	1. 59	·1391	3. 15	·02163	3. 0	60 ·3	60 ·7
4. 36	19. 20	2. 58	·1387	6. 17	·02122	6. 0	59 ·5	60 ·0
5. 32	18. 20	5. 17	·1399	7. 46	·02140	7. 0	60 ·2	61 ·3
5. 45	19. 0	5. 59	·1397	8. 4	·02156	8. 0	60 ·3	61 ·4
6. 28	13. 0	6. 19	·1388	8. 19	·02143	9. 0	60 ·3	61 ·3
6. 55	17. 0	6. 34	·1395	8. 46	·02150	10. 20	60 ·3	61 ·4
7. 49	11. 40	7. 0	·1391	9. 13	·02130	11. 0	60 ·3	61 ·4
8. 15	17. 0	7. 35	·1397	9. 23	·02138	21. 30	60 ·0	60 ·6
8. 38	14. 20	7. 59	·1390	9. 45	·02109			
9. 0	19. 0	8. 9	·1399	13. 30	·02142			
9. 18	16. 0	8. 19	·1388	17. 55	·02119			
9. 39	20. 30	8. 39	·1393	19. 39	·02133			
9. 55	18. 50	8. 59	·1404	22. 0	·02105			
10. 5	19. 0	9. 16	·1390	22. 57	·02105			
10. 15	17. 50	9. 33	·1407	23. 59	·02105			
10. 37	16. 10	9. 58	·1394					
11. 40	18. 30	10. 14	·1399					
12. 17	18. 10	11. 13	·1393					
12. 30	19. 15	13. 15	·1398					
12. 48	18. 30	14. 47	·1395					
13. 34	19. 55	15. 47	·1398					
13. 56	18. 10	16. 7	·1393					
14. 18	19. 0	16. 29	·1400					
14. 45	18. 20	17. 40	·1402					
15. 10	19. 50	18. 16	·1391					
16. 0	19. 10	19. 0	·1394					
16. 18	20. 35	19. 29	·1390					
16. 36	20. 5	20. 2	·1397					
16. 50	21. 0	22. 20	·1384					
17. 20	19. 45	22. 50	·1391					
18. 28	20. 40	23. 59	·1386					
18. 50	20. 15							
19 16	21. 20							

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Oct. 26								
h m	° ′ ″	h m		h m		h m	°	°
19. 52	20. 20. 50							
20. 33	21. 0							
20. 49	19. 50							
21. 18	19. 45							
21. 31	20. 50							
22. 34	23. 0							
23. 12	26. 0							
23. 59	24. 10							
Oct. 27		Oct. 27		Oct. 27		Oct. 27		
0. 0	20. 24. 10	0. 0	·1386	0. 0	·02105	0. 0	60 ·1	60 ·8
0. 25	23. 40	0. 49	·1392	3. 6	·02130	8. 45	59 ·7	60 ·3
0. 40	25. 25	2. 58	·1402	11. 23	·02098	21. 0	59 ·0	58 ·8
1. 36	22. 5	4. 40	·1396	12. 5	·02075	22. 0	59 ·2	58 ·9
3. 55	19. 30	7. 59	·1403	15. 39	·02060	23. 0	59 ·5	59 ·5
4. 9	18. 55	9. 19	·1392	16. 20	·02030			
4. 27	19. 40	9. 58	·1400	20. 30	·02020			
7. 30	18. 15	10. 44	·1393	22. 5	·02003			
7. 59	18. 30	11. 10	·1398	23. 45	·02010			
8. 29	17. 30	11. 19	·1398	23. 59	·02035			
9. 0	18. 30	11. 29	·1407					
9. 26	16. 0	11. 38	·1404					
9. 35	16. 55	11. 49	·1408					
9. 46	16. 0	11. 58	·1404					
10. 35	18. 5	12. 16	·1404					
11. 55	18. 30	12. 32	·1408					
12. 10	17. 0	13. 3	·1399					
12. 20	16. 0	14. 0	·1391					
12. 40	17. 55	14. 11	·1397					
12. 55	17. 0	14. 21	·1394					
13. 17	17. 30	14. 43	·1397					
13. 35	16. 30	15. 18	·1391					
14. 20	19. 0	16. 6	·1406					
14. 50	16. 0	16. 20	·1407					
15. 18	19. 50	16. 59	·1396					
15. 42	22. 20	17. 58	·1399					
16. 27	18. 0	19. 4	·1394					
19. 5	18. 10	19. 17	·1397					
19. 43	19. 55	19. 47	·1390					
20. 2	19. 30	21. 6	·1387					
20. 28	20. 5	21. 29	·1377					
21. 38	19. 25	21. 58	·1382					
22. 0	21. 50	22. 6	·1376					
22. 4	20. 20	22. 16	·1382					
22. 16	21. 5	23. 5	·1386					
22. 54	21. 30	23. 59	·1386					
23. 36	23. 30							
23. 59	22. 40							
Oct. 28		Oct. 28		Oct. 28		Oct. 28		
0. 0	20. 22. 40	0. 0	·1386	0. 0	·02035	0. 0	59 ·7	60 ·0
1. 4	22. 55	2. 33	·1398	2. 39	·02076	1. 0	60 ·0	60 ·0
2. 15	20. 20	3. 23	·1394	9. 11	·02060	2. 0	59 ·7	60 ·0
2. 27	21. 10	3. 58	·1387	15. 5	·02050	3. 0	59 ·7	60 ·0
2. 46	20. 20	4. 40	·1395	21. 46	·02083	6. 0	59 ·7	60 ·0
3. 20	20. 25	6. 16	·1397	23. 59	·02085	7. 0	59 ·7	60 ·0
4. 10	16. 30	7. 32	·1390			8. 0	59 ·7	60 ·0

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Oct. 28	° ′ ″	Oct. 28				Oct. 28	°	°
h m s		h m s		m s		h m s		
5. 24	20. 19. 30	8. 8	·1396			9. 0	59·8	60·2
6. 25	18. 35	8. 30	·1392			9. 30	59·9	60·3
7. 3	16. 30	8. 49	·1399			21. 0	60·5	61·3
8. 26	18. 35	10. 9	·1393			22. 0	60·2	61·2
8. 38	16. 0	11. 9	·1397			23. 0	60·2	61·3
8. 50	16. 40	12. 7	·1390					
9. 4	16. 0	12. 26	·1397					
9. 38	17. 30	13. 58	·1389					
10. 15	16. 30	14. 19	·1395					
11. 6	17. 10	14. 34	·1392					
11. 25	16. 0	15. 11	·1396					
11. 35	16. 35	16. 49	·1393					
11. 44	16. 25	17. 25	·1396					
11. 55	17. 40	18. 34	·1392					
12. 5	17. 0	19. 15	·1395					
12. 24	17. 50	20. 23	·1389					
12. 40	17. 20	20. 48	·1382					
13. 25	19. 0	21. 37	·1380					
13. 36	17. 50	23. 8	·1392					
13. 58	17. 15	23. 59	·1396					
14. 19	20. 0							
14. 41	19. 20							
15. 13	22. 0							
15. 58	17. 25							
16. 50	18. 55							
17. 15	17. 50							
17. 23	18. 15							
17. 38	17. 50							
19. 13	18. 50							
19. 28	18. 10							
20. 34	18. 15							
21. 15	19. 50							
21. 47	18. 30							
22. 3	19. 30							
22. 50	20. 5							
23. 59	22. 20							
Oct. 29		Oct. 29		Oct. 29		Oct. 29		
0. 0	20. 22. 20	0. 0	·1396	0. 0	·02085	0. 0	60·4	61·4
0. 31	23. 0	2. 48	·1406	3. 53	·02130	1. 0	60·3	61·3
1. 50	20. 30	3. 5	·1399	7. 2	·02103	2. 0	60·4	61·4
2. 30	20. 20	4. 10	·1396	10. 53	·02129	3. 0	60·5	61·6
3. 1	18. 10	5. 43	·1405	11. 14	·02100	5. 0	60·6	61·6
3. 55	17. 5	6. 10	·1402	11. 53	·02083	6. 0	60·6	61·6
4. 37	16. 50	6. 39	·1413	12. 33	·02101	7. 0	60·6	61·6
4. 59	18. 30	7. 10	·1396	13. 22	·02070	8. 0	60·6	61·7
6. 6	18. 20	7. 30	·1400	15. 17	·02091	9. 0	60·7	61·3
6. 39	15. 0	7. 49	·1394	17. 19	·02080	21. 0	60·4	61·1
6. 53	15. 50	8. 14	·1400	17. 51	·02058	22. 0	60·4	61·2
7. 13	14. 0	9. 16	·1398	19. 30	·02080	23. 0	60·2	61·1
7. 29	14. 0	9. 52	·1387	20. 40	·02080			
7. 50	17. 0	10. 3	·1393	21. 30	·02070			
8. 9	16. 0	10. 25	·1384	23. 59	·02135			
8. 27	17. 0	10. 39	·1397					
8. 45	15. 10	10. 47	·1394					
9. 55	13. 0	10. 58	·1407					
10. 20	14. 35	11. 58	·1372					
10. 30	13. 45	12. 24	·1376					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Oct. 29	° ′ ″	Oct. 29				Oct. 29		
h m s		h m s		m s		h m s	°	°
10. 59	20. 16. 30	13. 3	·1404					
11. 22	11. 40	13. 59	·1386					
11. 31	11. 30	14. 15	·1380					
12. 0	4. 20	14. 39	·1381					
12. 31	10. 0	14. 59	·1390					
12. 46	8. 50	15. 7	·1388					
13. 5	10. 30	16. 25	·1396					
13. 11	9. 20	16. 59	·1382					
13. 18	9. 35	17. 56	·1408					
13. 36	5. 40	18. 17	·1399					
13. 50	4. 0	18. 40	·1399					
14. 5	5. 10	18. 55	·1393					
14. 13	5. 0	19. 38	·1394					
14. 44	11. 30	20. 0	·1385					
14. 59	12. 50	20. 47	·1385					
15. 31	10. 0	21. 6	·1378					
15. 48	12. 0	21. 38	·1374					
16. 20	13. 15	21. 49	·1378					
16. 53	22. 0	22. 15	·1375					
17. 8	21. 45	22. 27	·1378					
17. 29	26. 25	22. 50	·1366					
18. 39	15. 0	23. 22	·1367					
19. 10	18. 20	23. 59	·1382					
20. 11	21. 20							
22. 3	24. 10							
22. 43	28. 50							
22. 59	27. 30							
23. 46	26. 30							
23. 59	28. 0							
Oct. 30		Oct. 30		Oct. 30		Oct. 30		
0. 0	20. 28. 0	0. 0	·1382	0. 0	·02135	0. 0	60·3	61·3
0. 22	28. 20	0. 22	·1385	0. 39	·02138	1. 0	60·5	61·4
0. 44	24. 15	0. 42	·1380	1. 11	·02161	2. 0	60·5	61·5
1. 24	24. 50	1. 17	·1384	5. 8	·02142	3. 0	60·4	60·9
2. 23	21. 0	1. 30	·1384	7. 10	·02145	6. 0	60·6	61·8
3. 28	19. 30	2. 59	·1396	7. 39	·02155	7. 0	60·8	62·0
	(†)		(†)	13. 30	·02140	8. 0	60·8	62·0
6. 10	19. 0	7. 1	·1395	14. 21	·02132	9. 0	60·7	61·9
7. 5	19. 5	7. 43	·1393	18. 58	·02117	21. 0	60·6	61·3
7. 34	18. 25	8. 27	·1397	23. 28	·02095	22. 0	60·6	61·3
8. 5	13. 20	9. 0	·1392	23. 59	·02102	23. 0	60·6	61·1
8. 22	13. 0	9. 35	·1396					
8. 54	16. 50	9. 58	·1393					
9. 56	16. 50	11. 58	·1396					
10. 25	18. 0	12. 30	·1398					
10. 50	17. 20	13. 9	·1394					
11. 39	17. 50	14. 6	·1400					
11. 55	17. 5	15. 0	·1397					
12. 5	17. 30	17. 7	·1404					
12. 20	17. 25	17. 58	·1391					
12. 33	15. 25	18. 35	·1400					
12. 48	14. 30	19. 35	·1394					
13. 20	18. 15	20. 3	·1396					
13. 43	19. 0	21. 50	·1380					
14. 33	16. 30	23. 0	·1381					
14. 43	17. 10	23. 41	·1384					
15. 35	17. 50	23. 59	·1377					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.
Nov. 4	
h m s	° ′ ″
20. 43	20. 18. 5
20. 58	18. 0
21. 3	18. 40
21. 13	18. 0
21. 20	18. 30
21. 28	17. 5
21. 36	18. 20
22. 0	19. 0
22. 48	19. 0
23. 7	21. 0
23. 17	20. 15
23. 25	21. 10
23. 59	22. 0
Nov. 5	
0. 0	20. 22. 0
0. 32	24. 30
1. 33	21. 55
2. 11	22. 5
3. 49	20. 0
4. 0	20. 10
5. 24	19. 0
5. 36	18. 25
5. 55	18. 30
6. 36	16. 0
7. 18	17. 40
7. 49	17. 50
8. 10	17. 20
9. 45	17. 0
10. 11	13. 10
10. 26	14. 20
10. 35	13. 40
11. 22	16. 30
11. 54	17. 0
12. 5	16. 0
12. 30	17. 40
12. 50	17. 0
13. 15	18. 10
13. 30	18. 0
13. 37	18. 40
13. 50	17. 30
15. 19	19. 10
20. 40	17. 0
21. 32	18. 0
23. 4	21. 10
23. 16	21. 20
23. 46	22. 20
23. 59	21. 0
Nov. 6	
0. 0	20. 21. 0
0. 51	21. 5
1. 9	22. 40
1. 19	21. 30
1. 45	21. 30
1. 53	22. 5
2. 17	20. 10
4. 40	19. 10

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
h m s	
Nov. 5	
0. 0	·1393
1. 0	·1396
1. 48	·1404
3. 13	·1406
7. 16	·1406
8. 8	·1404
9. 8	·1402
9. 48	·1406
10. 16	·1412
10. 50	·1403
11. 14	·1409
12. 45	·1402
18. 12	·1408
22. 36	·1399
23. 59	·1398
Nov. 6	
0. 0	·1398
1. 56	·1408
2. 12	·1403
3. 35	·1406
8. 14	·1405
9. 1	·1402
9. 27	·1409
9. 37	·1402

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m s	
Nov. 5	
0. 0	·02060
1. 50	·02088
4. 18	·02083
11. 23	·02081
15. 26	·02110
20. 20	·02128
22. 17	·02105
23. 21	·02110
23. 59	·02100
Nov. 6	
0. 0	·02100
2. 35	·02120
9. 58	·02103
20. 50	·02080
22. 15	·02060
23. 35	·02065
23. 59	·02078

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m s	°	°
Nov. 5		
0. 0	60·8	61·1
1. 0	60·6	61·2
2. 0	60·7	61·2
3. 0	60·6	61·2
5. 15	60·6	61·3
6. 0	60·6	61·2
7. 0	60·6	61·1
8. 0	60·5	61·0
9. 0	60·7	61·2
21. 10	61·5	62·0
22. 0	61·4	61·6
23. 0	61·3	61·4
Nov. 6		
0. 0	61·2	61·3
1. 0	61·2	61·4
2. 0	61·2	61·2
3. 0	61·0	61·1
6. 0	61·1	61·3
7. 0	61·1	61·5
8. 0	61·0	61·5
9. 0	61·0	61·2

Greenwich Mean Solar Time.	Western Declination.
Nov. 6	
h m s	° ′ ″
8. 39	20. 18. 5
8. 59	16. 0
9. 11	12. 25
9. 32	15. 50
9. 41	16. 10
9. 45	15. 10
10. 11	15. 0
10. 20	18. 30
10. 30	18. 0
10. 45	14. 0
10. 53	14. 40
11. 9	14. 30
11. 29	13. 5
11. 57	16. 25
12. 55	18. 40
14. 4	19. 10
14. 48	18. 35
15. 25	19. 0
16. 4	20. 45
16. 12	21. 45
16. 31	20. 40
17. 0	20. 25
17. 17	19. 0
17. 38	19. 0
17. 49	17. 50
19. 0	17. 45
19. 22	18. 10
20. 51	17. 30
21. 45	18. 0
22. 47	20. 50
23. 26	23. 30
23. 59	22. 10
Nov. 7	
0. 0	20. 22. 10
0. 28	22. 30
3. 15	18. 45
5. 30	17. 40
8. 30	17. 30
8. 59	16. 0
9. 28	16. 40
9. 37	16. 0
10. 9	16. 50
10. 23	16. 10
10. 52	17. 20
11. 19	17. 0
11. 40	18. 0
11. 50	17. 30
13. 24	19. 0
14. 52	18. 30
15. 10	19. 0
20. 28 :	16. 30
21. 41	17. 55
22. 40	20. 15
23. 2	20. 5
23. 33	20. 30
	(†)

Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.
h m s	
Nov. 6	
9. 57	·1412
10. 33	·1400
10. 58	·1413
12. 20	·1396
15. 34	·1398
16. 10	·1394
17. 32	·1403
18. 0	·1400
18. 25	·1403
19. 24	·1401
21. 30	·1394
23. 17	·1400
23. 59	·1402
Nov. 7	
0. 0	·1402
3. 10	·1409
4. 23	·1407
8. 12	·1409
14. 58	·1403
18. 56	·1405
21. 32	·1394
23. 36	·1398
	(†)

Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.
h m s	
Nov. 7	
0. 0	·02078
3. 45	·02098
9. 39	·02070
12. 4	·02099
18. 40	·02109
21. 11	·02090
22. 25	·02062
23. 21	·02070
23. 59	·02085

Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
h m s	°	°
Nov. 6		
10. 0	61·1	61·4
21. 0	60·6	60·9
22. 0	60·5	60·3
23. 0	60·6	60·7
Nov. 7		
0. 0	60·7	61·0
1. 0	60·9	61·2
2. 0	60·9	61·3
3. 0	60·8	61·3
6. 0	60·8	61·4
7. 0	60·8	61·3
8. 0	60·8	61·1
9. 0	60·7	60·9
21. 0	61·4	61·3
22. 0	61·1	61·1
23. 0	61·0	61·0

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Nov. 8	° ′ ″	Nov. 8		Nov. 8		Nov. 8	°	°
h m	(†)	h m	(†)	h m	·02085	h m	61·2	61·3
0. 19	20. 22. 0	2. 20	·1408	0. 0	·02100	0. 0	61·2	61·2
1. 5	22. 30	5. 30	·1415	6. 17	·02085	1. 0	61·0	61·2
1. 46	22. 0	6. 54	·1406	10. 32	·02056	2. 0	61·0	61·2
2. 57	19. 30	9. 13	·1409	14. 50	·02023	3. 0	61·3	61·8
5. 18	18. 0	14. 0	·1407	18. 1	·02022	6. 0	61·0	61·3
5. 40	18. 20	18. 59	·1414	20. 17	·02015	9. 0	59·7	59·7
7. 41	18. 0	22. 14	·1398	21. 32	(†)	21. 0	60·3	60·3
7. 56	17. 25		(†)			22. 0	59·7	59·7
8. 17	17. 50	23. 32	·1399			23. 0		
9. 55	17. 0	23. 59	·1402					
11. 39	17. 0							
11. 53	17. 50							
12. 34	16. 10							
13. 1	17. 50							
13. 13	17. 10							
14. 22	17. 30							
20. 56	16. 0							
22. 22	18. 30							
	(†)							
23. 59	21. 50							
Nov. 9		Nov. 9		Nov. 9		Nov. 9		
0. 0	20. 21. 50	0. 0	·1402		(†)	0. 0	60·3	60·4
0. 50	22. 30	3. 46	·1406	1. 0	·02018*	1. 0	60·3	60·4
2. 1	20. 50	4. 46	·1402	3. 0	·02050*	3. 0	60·2	60·4
3. 20	18. 55	5. 21	·1393	9. 0	·02059*	6. 0	60·5	60·9
4. 4	18. 30	6. 17	·1402	10. 34	·02075	9. 0	60·5	61·1
5. 40	19. 40	6. 47	·1396	15. 12	·02056	21. 45	60·3	60·7
6. 13	18. 40	8. 34	·1408	22. 4	·02032			
6. 42	19. 0	9. 58	·1401	23. 0	·02030			
6. 56	18. 5	10. 17	·1403		(†)			
8. 10	17. 0	10. 42	·1400					
8. 42	16. 35	11. 38	·1400					
9. 47	16. 55	17. 0	·1406					
10. 8	16. 10	18. 24	·1408					
10. 45	14. 0	22. 7	·1391					
11. 0	15. 40	22. 37	·1398					
11. 28	16. 5	23. 59	·1411					
12. 0	17. 10							
13. 10	17. 0							
13. 53	17. 35							
15. 40	17. 10							
16. 10	17. 35							
20. 48	16. 35							
22. 22	18. 45							
22. 50	21. 10							
22. 55	21. 0							
23. 59	21. 30							
Nov. 10		Nov. 10		Nov. 10		Nov. 10		
0. 0	20. 21. 30	0. 0	·1411		(†)	0. 15	60·5	61·1
0. 16	21. 15	3. 7	·1410	0. 15	·02042*	2. 0	60·3	60·9
0. 31	21. 50	9. 20	·1406	9. 30	·02053*	8. 40	60·5	61·3
2. 42	19. 0	12. 14	·1405	13. 27	·02070	9. 30	60·7	61·3
7. 48	16. 35	12. 30	·1408	15. 30	·02044	21. 0	60·1	60·3
11. 14	16. 30	12. 49	·1406	21. 3	·02035	22. 0	59·9	60·1

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Nov. 10	° ′ ″	Nov. 10		Nov. 10		Nov. 10	°	°
h m		h m		h m		h m		
13. 53	20. 17. 50	17. 18	·1407	23. 36	·02010	23. 0	60·1	60·3
15. 25	17. 30	23. 59	·1397		(†)			
17. 9	18. 0							
20. 28	16. 45							
22. 3	18. 40							
23. 16	21. 10							
23. 59	21. 20							
Nov. 11		Nov. 11		Nov. 11		Nov. 11		
0. 0	20. 21. 20	0. 0	·1397		(†)	0. 0	60·4	60·9
0. 10	21. 45	1. 57	·1406	1. 0	·02041*	1. 0	60·6	61·4
1. 2	21. 0	7. 45	·1404	3. 0	·02062*	2. 0	60·6	61·4
3. 11	18. 0	12. 4	·1401	3. 12	·02080	3. 0	60·0	61·6
8. 51	17. 0	12. 30	·1404	9. 2	·02062	6. 0	60·6	61·5
11. 58	16. 30	13. 0	·1401	12. 15	·02082	9. 0	60·5	61·3
12. 11	17. 50	17. 59	·1404	14. 50	·02060	21. 0	60·2	60·8
12. 28	16. 40	21. 54	·1394	22. 15	·02036	22. 0	60·2	60·6
13. 0	17. 5	23. 59	·1399	23. 12	·02035	23. 0	60·5	60·8
13. 6	18. 30			23. 59	·02099			
13. 31	18. 55							
13. 50	17. 30							
14. 17	17. 20							
14. 46	17. 50							
18. 28	17. 0							
21. 29	18. 0							
22. 48	20. 0							
23. 59	20. 30							
Nov. 12		Nov. 12		Nov. 12		Nov. 12		
0. 0	20. 20. 30	0. 0	·1399	0. 0	·02090	0. 0	60·4	61·1
1. 18	20. 55	0. 37	·1399	4. 24	·02060	0. 30	60·6	61·3
2. 46	18. 30	1. 19	·1402	11. 58	·02055	1. 0	60·3	61·0
5. 0	18. 0	2. 0	·1401	22. 16	·02075	1. 30	60·2	60·9
5. 44	17. 20	3. 47	·1405		(†)	1. 45	60·1	60·7
6. 11	17. 40	9. 24	·1406			2. 0	60·1	60·6
8. 40	16. 20	9. 36	·1415			3. 0	60·0	60·6
8. 55	16. 35	10. 37	·1409			6. 0	60·5	61·4
10. 16	16. 0	12. 54	·1407			9. 0	60·0	61·0
11. 0	16. 50	14. 27	·1410			21. 0	60·8	61·6
12. 39	16. 35	16. 17	·1404			22. 0	60·6	61·2
13. 0	17. 40	16. 25	·1407			23. 0	60·6	61·1
13. 11	17. 50	16. 45	·1400					
13. 20	18. 30	16. 55	·1405					
13. 34	17. 50	17. 4	·1400					
13. 44	18. 20	17. 32	·1404					
14. 45	16. 10	18. 17	·1396					
15. 0	16. 55	18. 34	·1403					
15. 12	16. 0	18. 49	·1407					
15. 16	16. 30	19. 9	·1398					
15. 33	16. 30	19. 34	·1400					
15. 40	17. 5	19. 55	·1387					
16. 3	16. 15	20. 1	·1391					
16. 38	17. 30	20. 27	·1380					
16. 55	17. 20	21. 24	·1376					
17. 10	18. 0	21. 44	·1382					
17. 25	21. 30	21. 59	·1381					
18. 18	21. 0	22. 14	·1386					
18. 32	25. 40	22. 24	·1381					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Nov.17	° ′ ″	Nov.17					°	°
9. 1	20. 11. 30	10. 22	·1390					
9. 11	15. 0	10. 48	·1388					
9. 32	15. 30	13. 32	·1387					
9. 55	16. 45	14. 12	·1398					
10. 20	15. 50	14. 58	·1392					
10. 35	16. 50	17. 57	·1399					
10. 45	15. 30	19. 35	·1392					
11. 5	15. 0	20. 37	·1390					
11. 17	16. 5	21. 24	·1384					
11. 38	17. 0	22. 4	·1382					
12. 30	17. 55	23. 24	·1390					
12. 56	17. 0	23. 59	·1388					
13. 7	17. 55							
13. 18	18. 10							
13. 40	24. 0							
14. 15	23. 10							
14. 46	17. 20							
15. 10	15. 25							
16. 9	18. 0							
16. 23	17. 25							
17. 11	18. 55							
17. 19	17. 30							
17. 45	17. 25							
17. 53	17. 50							
18. 0	17. 5							
18. 59	17. 55							
19. 11	17. 5							
19. 19	18. 0							
19. 28	17. 20							
22. 5	18. 30							
22. 33	19. 30							
23. 9	19. 30							
23. 30	21. 15							
23. 59	20. 30							
Nov.18		Nov.18		Nov.18		Nov.18		
0. 0	20. 20. 30	0. 0	·1388			0. 0	59·5	59·4
1. 43	19. 20		***	1. 5	(†)	1. 0	59·3	59·2
1. 53	19. 55	2. 27	·1400	4. 28	·01920	2. 0	59·4	59·2
4. 0	18. 0	4. 14	·1394	6. 13	·01920	3. 0	59·4	59·3
4. 22	16. 10	4. 44	·1399	10. 13	·01945	6. 0	60·6	60·6
4. 48	18. 5	5. 10	·1400	21. 37	·01907	9. 0	59·8	60·2
5. 1	17. 55	5. 16	·1396	23. 0	·01905	21. 0	59·7	59·6
5. 9	18. 0	5. 52	·1403	23. 59	·01915	22. 0	59·5	59·6
5. 30	14. 5	6. 10	·1398			23. 0	59·7	59·9
6. 6	18. 20	6. 36	·1402					
7. 32	17. 55	8. 0	·1396					
8. 30	15. 50	8. 18	·1395					
8. 57	13. 5	8. 59	·1392					
9. 3	13. 30	9. 25	·1384					
9. 16	12. 55	9. 58	·1388					
9. 33	11. 25	10. 25	·1390					
11. 35	17. 40	11. 1	·1397					
12. 39	16. 55	11. 35	·1392					
14. 38	18. 30	12. 10	·1398					
14. 55	20. 50	14. 34	·1397					
15. 13	19. 0	15. 12	·1404					
15. 59	20. 40	15. 33	·1397					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Nov.18		Nov.18						
h m	° ′ ″	h m				h m	°	°
16. 9	20. 20. 0	16. 22	·1405					
16. 15	20. 35	18. 34	·1408					
16. 34	17. 20	22. 0	·1395					
16. 48	17. 50	22. 17	·1398					
18. 55	17. 10	23. 20	·1400					
19. 7	17. 55	23. 59	·1408					
22. 9	18. 30							
22. 20	19. 10							
23. 32	19. 50							
23. 59	20. 0							
Nov.19		Nov.19		Nov.19		Nov.19		
0. 0	20. 20. 0	0. 0	·1408	0. 0	·01915	0. 0	..	60·0
0. 27	20. 35	1. 12	·1406	6. 39	·01958	1. 0	59·7	60·1
0. 48	19. 55	1. 55	·1410	10. 7	·01940	2. 0	59·8	60·1
5. 0	19. 0	2. 8	·1408	13. 23	·01964	3. 0	59·9	60·2
5. 15	18. 10	2. 57	·1416	20. 10	·01968	6. 0	59·9	60·2
6. 0	18. 55	5. 14	·1409	22. 10	·01951	9. 0	59·7	60·0
7. 36	17. 30	6. 36	·1412	23. 59	·01940	21. 0	60·0	60·1
11. 31	17. 55	11. 36	·1412			22. 0	60·0	59·9
12. 0	17. 30	11. 51	·1409			23. 0	60·0	59·8
12. 24	17. 50	12. 50	·1406					
12. 55	17. 50	13. 30	·1415					
13. 15	19. 30	14. 48	·1406					
13. 25	19. 0	18. 14	·1410					
13. 39	20. 0	22. 34	·1402					
13. 56	18. 0	23. 55	·1406					
14. 35	17. 35	23. 59	·1405					
14. 46	19. 10							
20. 50	18. 20							
22. 45	19. 55							
23. 59	20. 0							
Nov.20		Nov.20		Nov.20		Nov.20		
0. 0	20. 20. 0	0. 0	·1405	0. 0	·01940	0.	60·2	60·2
1. 7	20. 0	6. 34	·1410	7. 31	·01980	1. 0	60·3	60·3
4. 29	17. 50	9. 34	·1404	16. 13	·01950	3. 0	60·2	60·2
8. 36	17. 55	10. 13	·1408	23. 15	·01930	6. 0	60·4	60·3
8. 53	16. 5	10. 29	·1404	23. 59	·01930	9. 0	60·4	60·3
9. 55	17. 10	15. 26	·1410			21. 0	..	59·8
10. 35	16. 0	16. 21	·1414			22. 0	60·1	60·0
11. 13	17. 30	16. 50	·1412			23. 0	60·1	60·0
14. 8	17. 30	19. 43	·1415					
15. 30	18. 0	23. 24	·1410					
15. 39	19. 40	23. 59	·1410					
15. 48	19. 10							
16. 21	16. 30							
17. 5	17. 45							
19. 50	18. 30							
21. 45	18. 0							
22. 11	18. 10							
23. 32	19. 55							
23. 59	20. 0							
Nov.21		Nov.21		Nov.21		Nov.21		
0. 0	20. 20. 0	0. 0	·1410	0. 0	·01930	0. 0	60·4	60·4
0. 57	21. 0	1. 0	·1416	2. 35	·01960	1. 0	60·4	60·4
3. 28	19. 20	3. 33	·1420	7. 27	·01952	2. 0	60·4	60·3

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Nov.21		Nov.21		Nov.21		Nov.21		
h m	° ′ ″	h m		h m		h m	°	°
5. 17	20. 19. 0	3. 55	·1418	9. 5	·01960	3. 0	60·4	60·4
8. 46	17. 50	4. 9	·1420	11. 0	·01985	6. 0	60·2	60·2
8. 55	17. 35	6. 20	·1420	14. 1	·01940	9. 0	60·2	60·2
9. 5	15. 20	7. 9	·1413	20. 47	·01915	21. 0	59·6	59·0
9. 21	16. c	8. 10	·1414	23. 3	·01880	22. 0	59·6	58·9
9. 39	14. 40	8. 28	·1410		(†)	23. 0	59·6	59·1
9. 54	14. 50	9. 4	·1410					
10. 10	10. 0	9. 39	·1396					
10. 29	9. 30	9. 56	·1404					
10. 55	13. 55	10. 11	·1398					
11. 19	15. 0	10. 21	·1401					
11. 35	14. 5	10. 38	·1397					
11. 50	15. 0	11. 22	·1401					
12. 3	14. 55	11. 34	·1399					
12. 20	16. 55	11. 55	·1402					
12. 30	16. 10	12. 8	·1400					
12. 45	17. 0	12. 40	·1405					
13. 7	15. 0	13. 6	·1404					
13. 24	16. 0	13. 38	·1414					
14. 31	14. 30	14. 27	·1410					
15. 18	16. 50	18. 30	·1410					
15. 31	16. 35	18. 58	·1413					
15. 55	18. 5	23. 59	·1410					
16. 26	16. 30							
17. 15	16. 55							
17. 25	17. 20							
17. 57	17. 30							
18. 52	18. 10							
19. 32	17. 50							
19. 40	18. 0							
19. 48	17. 25							
20. 35	17. 25							
20. 41	16. 30							
21. 0	17. 15							
21. 8	16. 10							
21. 15	17. 15							
21. 30	16. 50							
21. 45	17. 0							
22. 0	18. 25							
22. 22	17. 25							
23. 7	19. 30							
23. 33	19. 10							
23. 59	20. 30							
Nov.22		Nov.22		Nov.22		Nov.22		
0. 0	20. 20. 30	0. 0	·1410	1. 0	·01902*	0. 0	59·7	59·3
1. 0	22. 0	1. 12	·1404	3. 0	·01914*	1. 0	59·6	59·5
1. 20	21. 0	2. 3	·1414	9. 0	·01963*	2. 0	59·6	59·5
1. 59	21. 5	2. 27	·1411	21. 0	·01952*	3. 0	59·4	59·3
3. 1	19. 0	3. 4	·1415			6. 0	59·9	60·4
3. 40	20. 30	4. 47	·1407			9. 0	60·1	60·9
4. 9	20. 0	5. 28	·1414			21. 0	60·1	60·4
4. 19	20. 5	6. 7	·1403			22. 0	60·0	60·4
4. 35	19. 0	6. 10	·1405			23. 0	59·7	59·7
5. 28	17. 30	6. 46	·1398					
5. 45	19. 5	7. 8	·1404					
6. 2	19. 30	7. 21	·1402					
6. 18	18. 30	7. 46	·1392					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Nov.22		Nov.22						
h m	° ′ ″	h m		h m		h m	°	°
6. 35	20. 19. 30	8. 46	·1402					
6. 55	17. 20	9. 8	·1408					
7. 9	16. 15	9. 45	·1406					
7. 13	17. 15	10. 11	·1421					
7. 29	17. 10	10. 16	·1416					
7. 38	17. 55	10. 49	·1425					
8. 0	12. 30	11. 30	·1412					
8. 36	15. 30	11. 59	·1410					
9. 15	15. 50	12. 22	·1414					
9. 29	14. 20	12. 47	·1406					
9. 42	14. 30	13. 29	·1414					
10. 10	13. 50	14. 20	·1410					
10. 52	9. 30	17. 22	·1417					
11. 5	11. 0	19. 12	·1418					
11. 11	10. 55	20. 34	·1412					
11. 27	13. 0	20. 56	·1405					
11. 40	12. 0	22. 1	·1410					
11. 55	13. 15		(†)					
12. 6	13. 10	23. 0	·1412					
12. 16	13. 55	23. 59	·1414					
12. 30	14. 0							
12. 41	16. 5							
14. 11	15. 50							
14. 39	17. 55							
15. 58	18. 40							
16. 6	19. 20							
17. 35	17. 55							
20. 50	17. 20							
20. 58	17. 50							
21. 18	17. 10							
21. 49	17. 20							
23. 59	20. 0							
Nov.23		Nov.23		Nov.23		Nov.23		
0. 0	20. 20. 0	0. 0	·1414	0. 0	·01970	0. 0	59·9	60·5
0. 54	20. 30	4. 47	·1418	2. 15	·02020	1. 0	59·8	60·6
3. 19	18. 0	6. 35	·1415	4. 18	·02030	2. 0	59·7	60·5
5. 39	17. 10	6. 59	·1404	5. 31	·02058	3. 0	59·6	60·6
6. 22	17. 50	7. 20	·1409	8. 45	·02064	6. 0	59·7	61·0
6. 38	15. 0	7. 33	·1407	13. 38	·02040	7. 0	59·7	61·1
6. 58	14. 10	7. 46	·1418	16. 11	·02050	8. 0	59·6	60·9
7. 18	17. 0	7. 52	·1414	18. 53	·02028	9. 0	59·6	60·9
7. 40	18. 0	8. 33	·1418	20. 54	·02036	10. 0	59·6	60·9
8. 17	16. 0	8. 56	·1414	22. 57	·02012	11. 0	59·6	60·9
8. 56	16. 0	12. 14	·1415	23. 59	·02018	21. 30	59·3	60·5
9. 14	17. 0	12. 55	·1420			23. 0	59·6	60·7
12. 14	18. 0	13. 36	·1415					
12. 30	19. 0	14. 26	·1419					
12. 51	19. 15	15. 0	·1416					
13. 16	17. 20	15. 38	·1420					
14. 5	18. 0	17. 34	·1420					
14. 24	19. 0	18. 10	·1417					
15. 0	17. 30	18. 55	·1421					
15. 55	17. 30	19. 34	·1415					
16. 36	18. 10	22. 43	·1411					
17. 7	17. 10	23. 59	·1416					
18. 10	17. 50							
18. 33	18. 45							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers Of H. F. Magnet.	Readings of Thermometers Of V. F. Magnet.
Nov.27	° ′ ″	Nov.27		Nov.27		Nov.27	°	°
h m		h m		h m		h m		
0. 0	20. 21. 55	0. 0	·1399	0. 0	·03490	0. 0	58 ·9	58 ·9
0. 5	22. 45	0. 16	·1390	1. 38	·03508	1. 0	59 ·0	59 ·2
0. 21	21. 0	0. 47	·1398	2. 8	·03560	2. 0	58 ·9	59 ·4
0. 27	22. 0	1. 0	·1396	2. 29	·03540	3. 0	58 ·8	59 ·2
0. 39	21. 40	1. 16	·1402	3. 34	·03565	6. 0	59 ·0	59 ·6
1. 2	23. 30	1. 38	·1383	4. 30	·03546	9. 0	58 ·7	59 ·2
1. 10	23. 0	1. 58	·1397	5. 6	·03550	21. 0	56 ·8	55 ·8
1. 16	25. 0	2. 3	·1393	6. 45	·03510	22. 0	56 ·8	55 ·9
1. 33	24. 50	2. 17	·1406	7. 25	·03515	23. 0	57 ·3	56 ·4
1. 45	17. 30	2. 23	·1387	7. 32	·03495			
1. 50	18. 0	2. 40	·1384	7. 45	·03512			
2. 2	14. 0	2. 58	·1390	8. 0	·03485			
2. 22	23. 0	3. 6	·1386	8. 18	·03475			
2. 49	17. 30	3. 25	·1394	8. 40	·03482			
2. 55	17. 30	3. 32	·1390	12. 27	·03453			
2. 58	18. 30	4. 6	·1398	12. 49	·03440			
3. 15	18. 30	4. 13	·1391	13. 23	·03440			
3. 30	19. 50	4. 21	·1393	15. 0	·03395			
3. 41	18. 45	4. 30	·1392	15. 15	·03408			
3. 48	19. 0	5. 0	·1408	23. 5	·03329			
3. 59	17. 0	5. 11	·1400	23. 59	·03330			
4. 7	18. 50	5. 30	·1403					
4. 25	18. 0	5. 45	·1414					
4. 38	14. 30	6. 3	·1410					
4. 50	15. 30	6. 15	·1414					
5. 7	19. 30	6. 30	·1408					
5. 31	19. 0	7. 3	·1403					
5. 35	17. 30	7. 22	·1406					
5. 43	19. 35	7. 50	·1449					
6. 29	18. 0	8. 0	·1424					
6. 49	15. 30	8. 9	·1426					
7. 1	15. 0	8. 20	·1414					
7. 9	15. 50	8. 35	·1424					
7. 20	14. 30	8. 40	·1416					
7. 34	5. 0	8. 47	·1418					
7. 54	14. 55	9. 7	·1403					
8. 0	11. 50	10. 10	·1407					
8. 5	11. 50	10. 50	·1404					
8. 20	5. 30	11. 58	·1410					
8. 35	10. 10	12. 10	·1418					
8. 48	13. 40	12. 34	·1422					
9. 3	12. 30	12. 57	·1412					
9. 39	15. 50	13. 13	·1408					
10. 25	16. 0	13. 37	·1415					
10. 40	15. 30	13. 41	·1414					
11. 6	16. 30	14. 3	·1416					
11. 55	16. 30	14. 18	·1412					
12. 13	14. 0	14. 48	·1416					
12. 34	18. 0	15. 10	·1410					
12. 58	15. 0	15. 35	·1412					
13. 18	18. 40	16. 11	·1408					
13. 30	18. 0	16. 29	·1410					
13. 39	19. 50	16. 40	·1406					
14. 30	22. 35	17. 59	·1414					
15. 8	16. 50	18. 23	·1410					
15. 55	17. 0	18. 31	·1412					
16. 7	18. 0	18. 51	·1404					
16. 20	17. 0	19. 20	·1406					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Nov.27	° ′ ″	Nov.27		h m		h m	°	°
h m		h m						
16. 42	20. 18. 0	19. 28	·1402					
16. 50	17. 40	20. 7	·1410					
17. 21	18. 0		***					
17. 30	18. 30	20. 55	·1406					
17. 57	18. 0	20. 58	·1412					
18. 33	19. 0	21. 20	·1402					
18. 40	18. 30	21. 45	·1410					
18. 55	19. 10	22. 12	·1404					
19. 5	19. 0	23. 0	·1406					
19. 31	20. 35	23. 10	·1410					
19. 52	18. 0	23. 59	·1406					
20. 3	19. 15							
20. 25	20. 0							
	***							
21. 0	19. 0							
21. 3	18. 20							
21. 11	20. 20							
21. 32	17. 30							
22. 19	19. 30							
22. 55	18. 55							
23. 59	19. 30							
Nov.28		Nov.28		Nov.28		Nov.28		
0. 0	20. 19. 30	0. 0	·1406	0. 0	·03330	0. 0	57 ·3	56 ·4
1. 15	20. 5	0. 16	·1404	5. 35	·03400	1. 0	57 ·4	56 ·7
2. 28	19. 5	1. 10	·1414	9. 5	·03408	2. 0	57 ·8	57 ·4
2. 34	20. 10	2. 16	·1410	9. 58	·03399	3. 0	57 ·8	57 ·6
3. 21	18. 0	2. 42	·1418	12. 9	·03397	6. 0	58 ·3	58 ·6
3. 31	18. 30	3. 16	·1412	17. 2	·03388	9. 0	58 ·4	58 ·7
3. 42	17. 0	3. 46	·1402	21. 30	·03350	10. 30	58 ·3	58 ·6
4. 16	17. 20	4. 14	·1410	23. 59	·03330	21. 0	57 ·4	56 ·7
4. 27	16. 35	5. 12	·1414			22. 0	57 ·4	56 ·6
4. 50	18. 0	5. 26	·1409			23. 0	56 ·6	55 ·3
5. 59	18. 20	6. 18	·1415					
6. 10	17. 0	7. 40	·1410					
7. 9	16. 0	8. 18	·1414					
7. 21	16. 50	8. 30	·1426					
7. 59	15. 0	9. 3	·1414					
8. 16	9. 15	9. 55	·1419					
8. 29	10. 10	10. 10	·1413					
9. 5	16. 50	11. 46	·1412					
9. 51	15. 40	12. 5	·1416					
10. 28	17. 0	12. 27	·1413					
11. 32	17. 0	12. 45	·1419					
11. 40	18. 20	13. 15	·1415					
12. 8	17. 0	14. 40	·1416					
12. 28	20. 0	14. 59	·1420					
12. 46	18. 0	15. 9	·1417					
13. 38	17. 30	16. 29	·1416					
13. 55	18. 0	17. 28	·1422					
14. 10	17. 45	17. 43	·1420					
14. 21	18. 5	20. 0	·1425					
14. 37	18. 0	22. 8	·1410					
14. 51	18. 40	23. 59	·1418					
15. 32	18. 0							
16. 20	18. 30							
16. 37	19. 10							
16. 49	18. 40							

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Nov.28								
h m	° ′ ″	h m		h m		h m	°	°
17. 16	20. 20. 0							
17. 33	18. 50							
17. 51	19. 0							
18. 8	17. 10							
18. 35	18. 0							
18. 58	17. 30							
19. 11	18. 0							
19. 35	17. 30							
19. 39	17. 25							
19. 49	18. 0							
20. 25	17. 55							
21. 0	18. 50							
22. 3	19. 0							
23. 59	19. 10							
Nov.29		Nov.29		Nov.29		Nov.29		
0. 0	20. 19. 10	0. 0	·1418	0. 0	·03330	0. 0	57 ·9	58 ·1
0. 59	19. 10	1. 14	·1420	1. 18	·03380	1. 0	58 ·4	59 ·1
1. 5	20. 25	3. 21	·1412	3. 31	·03430	2. 0	58 ·5	59 ·5
3. 20	18. 30	4. 43	·1413	6. 38	·03453	3. 0	58 ·8	59 ·8
3. 22	19. 5	5. 20	·1420	10. 12	·03455	5. 30	58 ·2	59 ·5
4. 45	18. 15	5. 38	·1416	13. 8	·03475	6. 0	58 ·3	59 ·6
4. 55	17. 30	6. 0	·1418	17. 4	·03475	9. 0	58 ·3	59 ·6
5. 15	17. 0	6. 52	·1414	21. 18	·03440	21. 0	58 ·2	58 ·7
5. 32	18. 10	9. 35	·1415	21. 55	·03445	22. 0	58 ·2	58 ·8
6. 0	18. 0	9. 54	·1417	23. 30	·03450	23. 0	58 ·2	58 ·8
6. 28	19. 0	10. 40	·1411	23. 59	·03455			
6. 56	18. 0	11. 17	·1414					
7. 30	18. 5	11. 46	·1410					
8. 16	16. 30	12. 0	·1414					
9. 48	16. 30	12. 58	·1413					
10. 30	15. 25	13. 10	·1418					
10. 55	16. 35	14. 0	·1413					
11. 42	15. 55	16. 10	·1415					
12. 8	17. 30	16. 24	·1418					
12. 37	16. 25	17. 48	·1420					
12. 52	16. 50	18. 22	·1417					
13. 6	18. 30	20. 10	·1420					
13. 36	17. 0	20. 27	·1425					
13. 59	17. 30	21. 26	·1409					
14. 28	19. 0	22. 25	·1405					
15. 27	17. 45 ***	23. 59	·1409					
17. 40	18. 0 ***							
21. 22	17. 30							
21. 59	18. 0							
22. 6	19. 40							
23. 45	19. 55							
23. 59	20. 0							
Nov.30		Nov.30		Nov.30		Nov.30		
0. 0	20. 20. 0	0. 0	·1409	0. 0	·03455	0. 0	58 ·4	59 ·2
0. 32	19. 50	0. 41	·1410	2. 0	·03460	1. 0	58 ·4	59 ·3
0. 43	20. 10	1. 47	·1415	6. 59	·03455	2. 0	58 ·4	58 ·9
1. 37	19. 45	2. 47	·1416	14. 44	·03480	3. 0	58 ·2	58 ·9
2. 10	20. 0	3. 53	·1420	15. 32	·03470	3. 45	58 ·2	58 ·9
2. 59	18. 30	4. 21	·1418	21. 59	·03490	6. 0	58 ·1	58 ·7

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Nov.30		Nov.30		Nov.30		Nov.30		
h m	° ′ ″	h m		h m		h m	°	°
4. 59	20. 17. 55	6. 11	·1422	23. 0	·03500	9. 0	58 ·2	59 ·1
5. 14	18. 10	7. 37	·1413	23. 59	·03498	12. 0	58 ·6	59 ·7
6. 10	17. 35	7. 38	·1418			21. 45	59 ·0	60 ·6
6. 25	18. 0	8. 0	·1416					
7. 6	14. 30	8. 40	·1420					
7. 23	15. 55	8. 59	·1415					
7. 39	15. 0	9. 33	·1421					
8. 12	15. 55	10. 21	·1414					
8. 29	15. 15	11. 48	·1420					
8. 52	15. 40	12. 10	·1417					
9. 41	14. 30	12. 25	·1419					
9. 52	15. 30	13. 0	·1416					
10. 3	14. 30	14. 17	·1421					
12. 28	16. 10	14. 48	·1428					
12. 45	16. 0	15. 38	·1428					
13. 13	17. 15	16. 22	·1420					
13. 25	16. 50	16. 58	·1426					
13. 37	17. 20	17. 22	·1427					
14. 2	15. 0	18. 2	·1422					
14. 15	16. 0	18. 11	·1426					
14. 37	19. 0	18. 39	·1422					
14. 56	17. 40	19. 30	·1426					
15. 7	18. 55	19. 41	·1421					
15. 39	16. 0	19. 49	·1425					
16. 0	16. 15	20. 30	·1418					
16. 22	17. 40	20. 48	·1419					
16. 29	17. 10	21. 20	·1413					
16. 38	17. 30	21. 30	·1417					
17. 9	15. 30 ***	21. 51	·1413					
18. 14	17. 0	22. 7	·1415					
18. 46	15. 50	22. 14	·1413					
19. 32	16. 10	22. 24	·1416					
19. 44	15. 50	22. 47	·1413 (†)					
19. 52	17. 0							
20. 31	16. 0							
20. 40	16. 5							
21. 7	15. 55							
21. 14	16. 25							
21. 29	15. 35							
22. 13	17. 10							
22. 22	16. 0							
22. 32	18. 55							
22. 47	17. 25							
23. 22	19. 55							
23. 47	18. 30							
23. 59	20. 50							
Dec. 1		Dec. 1		Dec. 1		Dec. 1		
0. 0	20. 20. 50		(†)	0. 0	·03498	1. 0	59 ·0	60 ·7
0. 14	22. 25	1. 16	·1412	2. 36	·03532	8. 0	58 ·7	60 ·2
0. 35	20. 0	1. 50	·1419	9. 32	·03532	21. 0	54 ·7	54 ·4
0. 58	20. 25	2. 5	·1418	12. 53	·03495	22. 0	56 ·4	55 ·6
1. 10	18. 50	2. 34	·1414	18. 50	·03368	23. 0	56 ·4	55 ·8
1. 43	19. 50	2. 47	·1425	22. 32	·03273			
2. 26	18. 30	3. 0	·1421	23. 59	·03280			
2. 43	19. 30	4. 25	·1427 ***					
3. 6	18. 35							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

November 27d. 0h. VERTICAL FORCE.—The adjustments were altered, so that the readings were increased by 25div·00 or by 0·020457 parts of the whole Vertical Force.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Dec. 6								
h. m.	° ′ ″	h. m.		h. m.		h. m.	°	°
21. 58	20. 19. 0							
	(†)							
23. 10	20. 0							
23. 59	20. 0							
Dec. 7		Dec. 7		Dec. 7		Dec. 7		
0. 0	20. 20. 0	0. 0	·1404	0. 0	·03511	0. 0	59 ·8	60 ·0
0. 44	20. 0	0. 30	·1405	3. 3	·03517	1. 0	60 ·0	60 ·0
1. 3	21. 25	0. 42	·1404	6. 25	·03540	2. 0	60 ·0	60 ·0
1. 22	21. 20	1. 1	·1409	12. 25	·03539	3. 0	60 ·0	60 ·0
2. 22	19. 55	2. 57	·1404	19. 29	·03514	6. 0	60 ·0	60 ·4
4. 10	18. 50	3. 12	·1400	21. 55	·03520	9. 0	60 ·0	60 ·2
4. 29	19. 0	4. 58	·1408	22. 38	·03515	21. 30	60 ·3	60 ·7
6. 10	18. 40	7. 16	·1404		(†)	23. 0	60 ·3	60 ·7
6. 21	18. 0	7. 46	·1400					
6. 50	17. 30	8. 57	·1403					
7. 19	18. 10	9. 16	·1400					
8. 12	14. 25	11. 50	·1403					
8. 29	14. 30	12. 25	·1400					
8. 39	15. 45	15. 36	·1403					
8. 57	14. 30	17. 55	·1406					
9. 25	16. 40	23. 59	·1404					
10. 3	16. 50							
10. 16	16. 30							
11. 13	16. 40							
11. 57	16. 0							
13. 0	17. 40							
13. 37	17. 30							
14. 16	18. 5							
15. 19	17. 55							
16. 0	18. 20							
17. 5	17. 30							
21. 25	17. 20							
22. 56	19. 25							
23. 59	20. 0							
Dec. 8		Dec. 8		Dec. 8		Dec. 8		
0. 0	20. 20. 0	0. 0	·1404		(†)	0. 0	60 ·2	60 ·9
0. 48	20. 0	0. 29	·1404	0. 50	·03520	1. 0	60 ·0	60 ·6
0. 57	19. 30	0. 55	·1406	9. 59	·03520	1. 20	..	60 ·4
2. 42	18. 5	3. 26	·1410	12. 55	·03532	9. 0	59 ·6	60 ·4
6. 15	18. 0	3. 36	·1414	23. 20	·03502	10. 0	59 ·6	60 ·4
6. 36	17. 30	5. 13	·1410	23. 59	·03500	21. 0	60 ·4	60 ·5
7. 5	17. 30	5. 28	·1416			22. 0	60 ·1	60 ·1
9. 34	16. 30	5. 34	·1411			23. 0	60 ·5	60 ·6
10. 15	17. 0	5. 50	·1415					
10. 32	16. 20	6. 36	·1407					
10. 40	17. 0	6. 55	·1410					
11. 8	17. 55	7. 59	·1407					
11. 33	18. 0	8. 5	·1405					
11. 40	17. 0	9. 55	·1407					
11. 45	17. 30	10. 4	·1413					
12. 0	17. 30	10. 22	·1403					
12. 18	13. 10	10. 54	·1405					
12. 45	16. 0	11. 18	·1403					
13. 7	15. 30	11. 27	·1409					
13. 34	16. 0	11. 32	·1400					
14. 7	16. 0	11. 50	·1400					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Dec. 8		Dec. 8						
h. m.	° ′ ″	h. m.		h. m.		h. m.	•	•
14. 23	20. 17. 10	11. 58	·1406					
14. 30	17. 0	12. 33	·1398					
14. 36	17. 25	13. 12	·1406					
15. 21	15. 30	14. 6	·1399					
16. 10	18. 0	14. 44	·1404					
16. 25	17. 0	15. 14	·1399					
17. 58	17. 10	18. 6	·1402					
18. 3	16. 50	18. 48	·1403					
18. 14	17. 20	20. 40	·1396					
18. 38	16. 55	22. 18	·1395					
19. 39	17. 30	23. 33	·1399					
22. 30	18. 30	23. 59	·1393					
22. 35	19. 40							
22. 46	20. 0							
23. 3	19. 10							
23. 59	19. 55							
Dec. 9		Dec. 9		Dec. 9		Dec. 9		
0. 0	20. 19. 55	0. 0	·1393	0. 0	·03500	0. 0	60 ·1	60 ·0
1. 7	20. 30	1. 7	·1400	8. 5	·03530	1. 0	60 ·2	60 ·0
2. 5	19. 30	6. 1	·1402	13. 20	·03502	2. 0	60 ·3	60 ·2
3. 10	19. 45	7. 0	·1394	16. 40	·03500	3. 0	60 ·5	60 ·4
6. 23	17. 0	7. 40	·1396	21. 20	·03515	3. 45	60 ·5	60 ·6
6. 38	17. 50	8. 8	·1391	23. 59	·03500	6. 0	60 ·4	60 ·6
6. 52	16. 30	8. 19	·1392			9. 0	60 ·3	60 ·3
7. 33	18. 0	8. 26	·1389			21. 0	60 ·5	60 ·3
8. 13	17. 0	9. 16	·1395			22. 0	60 ·5	60 ·2
8. 39	13. 40	10. 38	·1397			23. 0	60 ·6	60 ·4
9. 14	16. 50	11. 3	·1393					
9. 55	17. 0	11. 22	·1399					
10. 15	17. 30	11. 40	·1398					
10. 44	17. 5	12. 17	·1403					
11. 20	16. 10	13. 0	·1394					
11. 40	15. 0	14. 22	·1399					
11. 50	14. 50	14. 46	·1396					
12. 0	13. 20	16. 33	·1398					
12. 52	14. 50	17. 36	·1402					
13. 3	16. 0	18. 58	·1401					
13. 43	15. 55	19. 37	·1405					
13. 50	16. 55	19. 48	·1401					
14. 5	16. 30	21. 9	·1401					
14. 16	17. 30	21. 58	·1394					
15. 14	17. 30	23. 59	·1390					
15. 32	16. 50							
	***							
19. 21	17. 10							
19. 46	18. 10							
20. 5	17. 30							
20. 37	18. 35							
20. 47	18. 0							
20. 52	18. 20							
21. 29	17. 50							
22. 15	17. 55							
22. 31	19. 0							
22. 45	18. 40							
23. 59	19. 20							

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Readings of Thermometers. Of V.F. Magnet.
Dec. 10	° ′ ″	Dec. 10		Dec. 10		Dec. 10	°	°
h m		h m		h m		h m		
0. 0	20. 19. 20	0. 0	·1390	0. 0	·03500	0. 0	60 ·8	60 ·6
0. 32	19. 0	0. 18	·1388	2. 45	·03532	1. 0	60 ·8	60 ·7
0. 39	19. 55	1. 20	·1401	3. 10	·03525	2. 0	60 ·9	60 ·9
1. 2	19. 30	2. 10	·1394	5. 30	·03528	3. 0	60 ·2	60 ·1
1. 16	21. 0	4. 37	·1394	9. 23	·03540	6. 0	60 ·4	60 ·4
1. 34	21. 20	6. 16	·1389	21. 33	·03530	7. 0	60 ·0	60 ·2
2. 36	20. 0	6. 47	·1382	23. 59	·03525	8. 0	60 ·2	60 ·5
3. 13	20. 0	7. 4	·1389			9. 0	60 ·4	60 ·6
3. 19	19. 15	7. 30	·1382			21. 0	60 ·5	61 ·2
3. 37	19. 15	7. 47	·1388			22. 0	60 ·1	60 ·6
3. 47	19. 55	8. 6	·1384			23. 0	60 ·2	60 ·7
3. 59	18. 45	8. 24	·1390					
4. 16	18. 30	9. 1	·1388					
4. 29	19. 5	9. 40	·1397					
4. 55	18. 40	9. 57	·1396					
5. 5	19. 0	10. 46	·1402					
5. 40	16. 0	13. 26	·1403					
5. 59	16. 0	15. 34	·1408					
6. 8	15. 15	15. 42	·1405					
6. 30	17. 20	15. 56	·1409					
6. 42	17. 0	16. 4	·1407					
6. 50	17. 25	16. 12	·1409					
6. 59	16. 20	20. 26	·1406					
7. 9	17. 5	21. 51	·1399					
7. 34	14. 50	22. 3	·1403					
7. 44	12. 0	23. 59	·1403					
8. 15	10. 30							
8. 27	11. 40							
8. 32	11. 20							
8. 50	12. 40							
9. 8	12. 25							
9. 23	13. 50							
9. 33	13. 40							
9. 46	14. 30							
10. 7	14. 0							
11. 3	15. 55							
11. 17	15. 55							
15. 19	18. 0							
15. 52	17. 25							
16. 4	18. 0							
16. 14	17. 0							
17. 10	17. 30							
20. 37	16. 5							
20. 52	15. 40							
22. 6	16. 0							
22. 13	17. 0							
22. 19	16. 10							
22. 28	16. 55							
22. 42	16. 0							
22. 53	17. 15							
23. 8	16. 40							
23. 20	17. 50							
23. 46	17. 20							
23. 59	18. 30							
Dec. 11		Dec. 11		Dec. 11		Dec. 11		
0. 0	20. 18. 30	0. 0	·1403	0. 0	·03525	0. 0	60 ·6	61 ·3
0. 14	18. 30	1. 2	·1406	1. 30	·03540	1. 0	60 ·1	61 ·1

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V.F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Readings of Thermometers. Of V.F. Magnet.
Dec. 11	° ′ ″	Dec. 11		Dec. 11		Dec. 11	°	°
h m		h m		h m		h m		
0. 43	20. 18. 20	1. 12	·1409	3. 40	·03536	2. 0	60 ·1	61 ·0
1. 7	19. 10	2. 16	·1410	7. 15	·03480	3. 0	60 ·1	61 ·0
1. 36	19. 10	2. 36	·1408	9. 23	·03488	6. 0	59 ·1	58 ·9
2. 40	17. 30	3. 12	·1411	17. 45	·03473	7. 0	59 ·5	59 ·0
3. 33	16. 0	3. 28	·1408	22. 1	·03450	8. 0	59 ·6	59 ·9
3. 50	16. 40	4. 15	·1412	23. 59	·03440	9. 0	59 ·8	59 ·8
5. 10	16. 40	5. 10	·1415			21. 0	59 ·8	59 ·8
5. 31	14. 30	5. 23	·1410			22. 0	59 ·8	59 ·8
5. 56	15. 55	6. 2	·1416			23. 0	59 ·8	59 ·8
6. 15	15. 55	8. 10	·1411					
6. 30	15. 0	8. 30	·1413					
7. 3	15. 40	8. 50	·1409					
7. 30	14. 40	9. 21	·1414					
7. 56	15. 25	14. 34	·1415					
8. 35	15. 0	16. 56	·1418					
8. 52	14. 30	20. 17	·1416					
10. 24	15. 10	23. 59	·1410					
15. 27	16. 50							
20. 56	15. 30							
22. 10	17. 0							
22. 29	17. 50							
23. 23	18. 0							
23. 59	17. 50							
Dec. 12		Dec. 12		Dec. 12		Dec. 12		
0. 0	20. 17. 50	0. 0	·1410	0. 0	·03440	0. 0	60 ·0	60 ·1
0. 30	17. 55	0. 59	·1415	2. 33	·03485	1. 0	60 ·2	60 ·3
1. 20	18. 20	1. 12	·1412	6. 12	·03481	2. 0	60 ·2	60 ·3
1. 27	19. 55	1. 33	·1414	9. 15	·03465	3. 0	60 ·0	60 ·2
1. 33	18. 25	2. 12	·1409	14. 10	·03468	5. 0	59 ·9	60 ·2
2. 14	17. 20	3. 36	·1414	22. 1	·03400	6. 0	59 ·8	60 ·0
2. 37	17. 50	12. 26	·1411	23. 59	·03418	7. 0	59 ·7	59 ·7
3. 10	17. 10	19. 42	·1417			8. 0	59 ·7	59 ·8
5. 0	17. 0	20. 48	·1422			9. 0	59 ·8	60 ·0
5. 45	16. 0	21. 52	·1422			21. 0	59 ·5	59 ·1
6. 22	16. 15	23. 59	·1424			22. 0	59 ·5	59 .1
6. 44	15. 30					23. 0	59 ·7	59 ·5
7. 45	15. 5							
9. 45	14. 55							
10. 12	15. 0							
10. 23	15. 0							
16. 15	17. 45							
21. 22	17. 0							
21. 44	17. 45							
23. 29	17. 50							
23. 59	19. 0							
Dec. 13		Dec. 13		Dec. 13		Dec. 13		
0. 0	20. 19. 0	0. 0	·1424	0. 0	·03418	0. 0	59 ·8	59 ·8
0. 40	19. 30	0. 38	·1425	4. 3	·03450	1. 0	59 ·7	59 ·5
3. 12	17. 10	3. 55	·1423	5. 39	·03480	3. 0	59 ·8	59 ·9
4. 32	17. 0	4. 0	·1418	8. 42	·03475	6. 0	60 ·2	60 ·5
4. 52	18. 30	4. 36	·1420	10. 19	·03482	7. 0	60 ·0	60 ·3
5. 6	18. 0	4. 57	·1412	12. 29	·03475	8. 0	60 ·2	60 ·6
5. 31	18. 0	6. 7	·1416	16. 29	·03465	9. 0	60 ·3	60 ·6
6. 50	15. 55	6. 32	·1414	18. 31	·03442	21. 0	60 ·1	60 ·1
9. 16	14. 40	7. 22	·1420	22. 0	·03455	21. 45	60 ·1	60 ·0
9. 24	13. 0	7. 33	·1414	23. 59	·03435	22. 0	59 ·7	59 ·1

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
h m	° ′ ″			h m		h m	°	°
		Dec. 18						
		h m						
		22. 6	·1399					
		23. 16	·1398					
		23. 59	·1399					
Dec. 19		Dec. 19		Dec. 19		Dec. 19		
0. 0	20. 19. 0	0. 0	·1399	0. 0	·03465	0. 0	60 ·2	60 ·2
0. 37	18. 30	1. 3	·1402	1. 35	·03465	1. 0	60 ·0	60 ·0
0. 46	19. 0	1. 11	·1399	4. 5	·03480	2. 0	60 ·2	60 ·2
4. 29	17. 20	2. 17	·1401	6. 31	·03509	3. 0	60 ·2	60 ·2
5. 6	16. 0	2. 34	·1404	9. 26	·03490	6. 0	60 ·4	60 ·4
5. 25	17. 0	5. 35	·1398	14. 5	·03498	9. 0	60 ·4	60 ·4
5. 50	15. 0	6. 10	·1404	19. 56	·03438	21. 0	59 ·7	58 ·7
6. 15	17. 0	7. 34	·1404	23. 0	·03420	22. 0	59 ·7	59 ·0
6. 40	16. 30	10. 10	·1401	23. 59	·03425	23. 0	60 ·1	59 ·5
6. 51	16. 30	11. 39	·1402					
7. 0	16. 0	12. 45	·1402					
7. 40	17. 10	13. 5	·1404					
9. 22	16. 55	13. 30	·1402					
9. 36	16. 30	16. 48	·1408					
9. 59	16. 55	16. 58	·1405					
12. 44	16. 30	20. 48	·1406					
12. 57	17. 25	21. 40	·1409					
13. 21	16. 30	23. 4	·1407					
13. 51	16. 55	23. 59	·1416					
14. 48	17. 0							
15. 25	17. 50							
19. 4	17. 20							
20. 1	17. 0							
21. 21	17. 30							
23. 5	17. 5							
23. 59	17. 0							
Dec. 20		Dec. 20		Dec. 20		Dec. 20		
0. 0	20. 17. 0	0. 0	·1416	0. 0	·03425	0. 0	60 ·1	59 ·3
0. 51	17. 20	5. 12	·1412	4. 2	·03465	1. 0	60 ·1	59 ·9
4. 44	16. 0	5. 44	·1407	6. 45	·03510	2. 0	60 ·6	59 ·9
5. 20	16. 50	7. 59	·1409	9. 38	·03520	3. 0	60 ·3	60 ·3
5. 57	15. 55	8. 58	·1406	12. 40	·03572	6. 0	61 ·3	62 ·0
8. 45	16. 0	9. 14	·1412	20. 3	·03636	8. 0	60 ·9	61 ·8
9. 31	15. 30	9. 27	·1406	23. 0	·03600	9. 0	60 ·9	61 ·9
10. 0	14. 0	9. 44	·1409	23. 59	·03580	21. 0	62 ·6	63 ·0
10. 17	14. 55	10. 9	·1406			22. 0	61 ·8	61 ·8
10. 32	14. 55	11. 5	·1408			23. 0	61 ·5	61 ·2
10. 43	14. 0	11. 20	·1405					
11. 0	14. 0	11. 43	·1408					
11. 10	14. 30	12. 2	·1406					
11. 23	14. 0	15. 33	·1410					
12. 5	15. 10	16. 59	·1417					
15. 34	16. 0	17. 10	·1413					
16. 58	17. 0	17. 22	·1416					
17. 10	16. 15	17. 40	·1414					
17. 21	16. 40	18. 28	·1416					
17. 36	15. 30	18. 47	·1411					
18. 48	15. 50	18. 52	·1415					
18. 52	17. 0	18. 58	·1409					
18. 58	15. 30	19. 3	·1415					
19. 11	16. 20	19. 37	·1409					
20. 8	18. 30	20. 10	·1408					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H.F. Magnet.	Of V.F. Magnet.
Dec. 20	° ′ ″	Dec. 20		h m		h m	°	°
h m		h m						
20. 30	20. 21. 20	20. 30	·1400					
21. 29	19. 50	20. 54	·1405					
22. 3	17. 15	21. 20	·1406					
22. 41	17. 30	21. 46	·1398					
23. 35	19. 25	22. 19	·1398					
23. 59	19. 30	22. 47	·1394					
		23. 59	·1394					
Dec. 21		Dec. 21		Dec. 21		Dec. 21		
0. 0	20. 19. 30	0. 0	·1394	0. 0	·03580	0. 0	61 ·2	60 ·8
0. 20	18. 20	0. 32	·1397	2. 10	·03550	1. 0	61 ·0	60 ·5
0. 32	18. 35	0. 49	·1394	8. 38	·03536	2. 0	60 ·7	60 ·2
1. 22	17. 0	1. 27	·1406	9. 10	·03512	3. 0	60 ·8	60 ·3
1. 30	18. 0	2. 7	·1402	12. 42	·03531	6. 0	60 ·8	60 ·2
2. 36	17. 10	2. 46	·1403	13. 10	·03502	7. 0	60 ·7	60 ·1
2. 46	18. 0	3. 12	·1399	14. 10	·03529	9. 0	60 ·9	60 ·5
3. 18	17. 10	3. 27	·1401	22. 10	·03570	21. 30	61 ·8	62 ·2
3. 37	18. 50	3. 40	·1396	23. 3	·03560			
3. 45	19. 0	3. 54	·1398	23. 59	·03559			
3. 59	20. 55	4. 22	·1384					
4. 30	20. 0	4. 37	·1390					
4. 44	20. 25	5. 42	·1404					
5. 0	18. 20	5. 59	·1400					
5. 20	17. 0	6. 44	·1405					
5. 35	17. 0	7. 12	·1398					
6. 17	*18. 20	7. 28	·1406					
6. 39	17. 10	7. 59	·1403					
7. 14	16. 15	8. 14	·1398					
7. 30	13. 40	8. 46	·1425					
7. 41	14. 50	9. 8	·1411					
8. 14	14. 30	9. 59	·1403					
8. 25	14. 55	10. 18	·1408					
8. 45	8. 55	10. 58	·1404					
9. 0	9. 50	11. 19	·1407					
9. 15	8. 55	11. 59	·1404					
9. 30	9. 15	12. 24	·1409					
9. 58	13. 50	12. 57	·1425					
10. 7	13. 0	13. 27	·1403					
10. 20	13. 55	15. 22	·1405					
10. 45	13. 30	15. 43	·1401					
11. 22	15. 30	16. 20	·1407					
11. 33	14. 40	16. 56	·1402					
11. 48	15. 0	17. 34	·1412					
12. 9	13. 50	18. 22	·1416					
12. 52	15. 50	19. 24	·1410					
13. 21	11. 0	20. 57	·1410					
13. 51	15. 0	23. 12	·1404					
14. 59	15. 50	23. 59	·1406					
15. 14	14. 0							
15. 30	15. 0							
15. 39	17. 15							
16. 1	17. 15							
16. 14	16. 30							
16. 32	18. 0							
17. 8	18. 30							
17. 50	17. 0							
18. 50	17. 0							

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Dec. 21								
h m	° ′ ″	h m		h m		h m	°	°
19. 6	20. 16. 30							
19. 21	16. 55							
21. 9	17. 0							
21. 37	16. 45							
22. 1	17. 30							
23. 27	17. 50							
23. 59	17. 20							
Dec. 22		Dec. 22		Dec. 22		Dec. 22		
0. 0	20. 17. 20	0. 0	·1406	0. 0	·03559	0. 0	60·4	60·5
1. 52	17. 20	0. 35	·1411	6. 45	·03490	0. 45	60·0	60·1
3. 16	15. 50	3. 15	·1414	9. 25	·03490	4. 30	59·8	59·9
3. 29	16. 15	3. 55	·1410	11. 49	·03460	6. 15	60·1	59·7
3. 50	15. 0	4. 37	·1416	14. 55	·03440	8. 30	60·2	59·5
4. 8	16. 0	5. 33	·1415	21. 49	·03360	10. 10	59·9	59·5
4. 23	15. 50	6. 41	·1412	23. 59	·03390	21. 0	58·8	57·9
4. 40	16. 0	7. 29	·1406			22. 0	59·2	58·5
6. 29	15. 30	7. 55	·1409			23. 0	59·4	59·0
7. 3	16. 5	8. 10	·1414					
7. 26	15. 0	8. 40	·1400					
7. 40	10. 30	10. 25	·1413					
7. 48	10. 0	11. 16	·1408					
7. 51	9. 5	11. 43	·1421					
8. 5	8. 30	12. 10	·1414					
8. 25	12. 5	12. 42	·1412					
8. 49	12. 10	19. 47	·1418					
8. 59	14. 40	21. 6	·1410					
9. 19	14. 0	23. 8	·1408					
9. 36	15. 0	23. 59	·1412					
9. 59	13. 30							
10. 28	13. 40							
10. 35	14. 15							
10. 59	13. 10							
11. 20	14. 50							
11. 29	14. 0							
11. 56	15. 0							
12. 14	14. 0							
13. 5	16. 0							
13. 48	17. 0							
14. 1	16. 10							
14. 52	16. 40							
15. 5	15. 50							
16. 30	15. 50							
16. 44	16. 0							
16. 48	15. 20							
18. 24	15. 50							
20. 39	15. 10							
21. 5	16. 55							
21. 21	16. 0							
21. 51	16. 5							
22. 2	17. 0							
22. 10	17. 0							
22. 31	18. 20							
22. 47	17. 30							
23. 13	17. 15							
23. 59	17. 0							

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Of V. F. Magnet.
Dec. 23		Dec. 23		Dec. 23		Dec. 23		
h m	° ′ ″	h m		h m		h m	°	°
0. 0	20. 17. 0	0. 0	·1412	0. 0	·03390	0. 0	59·7	59·8
1. 12	18. 20	3. 11	·1409	3. 3	·03440	1. 0	59·8	60·5
3. 21	17. 0	3. 34	·1403		(†)	2. 0	60·1	60·6
3. 34	14. 30	5. 11	·1415			3. 0	59·9	60·5
4. 11	16. 30	5. 26	·1412			6. 0	59·9	60·1
4. 46	15. 55	5. 48	·1416			8. 15	59·8	60·3
5. 0	16. 0	6. 5	·1413			9. 0	59·9	60·2
5. 11	15. 30	6. 22	·1417			21. 0	60·0	60·5
5. 25	16. 0	7. 17	·1414			22. 0	59·7	59·8
6. 35	15. 30	8. 7	·1406			23. 0	59·7	59·8
7. 39	16. 0	10. 28	·1413					
8. 4	14. 30	11. 50	·1413					
8. 48	14. 5	13. 24	·1417					
9. 8	15. 0	13. 40	·1425					
11. 22	15. 30	14. 18	·1424					
11. 40	15. 0	14. 34	·1419					
12. 49	16. 0	15. 13	·1415					
13. 4	15. 25	17. 0	·1420					
13. 37	18. 0	17. 21	·1416					
14. 15	14. 0	18. 2	·1419					
14. 33	15. 10	21. 18	·1414					
14. 45	15. 0	22. 50	·1400					
15. 46	16. 30	23. 54	·1410					
15. 58	16. 0		(†)					
16. 10	16. 55							
16. 19	16. 0							
16. 36	15. 55							
17. 10	15. 30							
17. 29	17. 50							
17. 51	17. 40							
18. 26	16. 0							
18. 46	16. 30							
20. 39	16. 20							
20. 59	15. 50							
21. 20	16. 50							
21. 41	16. 30							
23. 19	21. 0							
23. 59	18. 30							
Dec. 24		Dec. 24				Dec. 24		
0. 0	20. 18. 30		(†)			0. 0	59·8	60·0
1. 3	19. 0	5. 58	·1447			1. 0	60·3	60·4
2. 14	17. 10	6. 41	·1446			3. 0	..	61·0
4. 4	17. 5	7. 11	·1441			4. 0	..	61·0
	(†)	8. 12	·1439			5. 0	..	61·0
5. 57	16. 0	8. 33	·1440			6. 0	60·8	60·8
6. 19	15. 30	9. 14	·1444			9. 0	60·2	60·5
6. 51	16. 10	9. 30	·1437			21. 45	60·0	60·1
8. 16	16. 0	9. 47	·1443					
8. 36	12. 55	10. 10	·1453					
8. 56	11. 30	10. 30	·1446					
9. 17	11. 30	10. 52	·1442					
9. 47	14. 55	11. 20	·1441					
10. 2	13. 50	11. 49	·1433					
10. 15	13. 20	12. 18	·1434					
10. 25	12. 10	12. 40	·1440					
10. 44	12. 0	13. 20	·1440					
10. 48	11. 0	13. 48	·1443					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

December 23d. 23h. 54m. After this time the Horizontal Force Magnet was under its annual adjustments till 24d. 5h. 58m.

December 23d. 3h. The Vertical Force Magnet was examined by Mr. Simms; he found that the knife edge needed some attention, and therefore took the magnet away for thorough examination and repair.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Dec. 28		Dec. 28						
h m	° ′ ″	h m		h m		h m	°	°
12. 59	20. 10. 0	23. 42	·1457					
13. 28	14. 0	23. 59	·1452					
13. 58	11. 0							
14. 27	15. 45							
14. 51	13. 0							
15. 0	13. 20							
15. 4	11. 50							
15. 9	11. 30							
15. 14	13. 20							
15. 26	12. 30							
15. 32	12. 50							
15. 46	12. 0							
16. 13	12. 30							
16. 20	13. 40 ***							
17. 49	13. 45							
17. 59	14. 30							
18. 7	13. 0							
18. 25	13. 55							
20. 5	15. 0							
20. 21	14. 0							
20. 36	14. 0							
21. 8	13. 30							
21. 17	13. 55							
21. 25	13. 30							
21. 59	15. 0							
22. 23	14. 0							
22. 55	16. 20							
23. 7	15. 10							
23. 21	15. 10							
23. 29	17. 15							
23. 32	15. 55							
23. 44	17. 5							
23. 51	15. 45							
23. 59	17. 20							
Dec. 29		Dec. 29				Dec. 29		
0. 0	20. 17. 20	0. 0	·1452			0. 0	59 ·9	60 ·2
0. 13	16. 55	0. 17	·1465			1. 0	..	60 ·2
0. 21	18. 0	0. 32	·1465			8. 0	60 ·2	60 ·4
0. 35	16. 30	0. 43	·1462			21. 0	59 ·8	60 ·3
0. 42	18. 0	0. 57	·1470			22. 0	59 ·8	60 ·0
1. 4	14. 0	1. 16	·1463			23. 0	59 ·8	60 ·0
1. 37	16. 0	1. 31	·1470					
1. 51	15. 0	2. 30	·1475					
2. 4	16. 0	3. 1	·1471					
2. 35	16. 10	3. 12	·1474					
3. 15	15. 0	3. 50	·1473					
3. 29	13. 40	4. 1	·1476					
4. 30	14. 0	4. 40	·1474					
5. 2	13. 45	4. 50	·1476					
5. 29	11. 25	5. 23	·1471					
5. 49	13. 50	6. 0	·1474					
6 20	13. 45	6. 38	·1472					
6. 36	13. 0	7. 11	·1474					
7. 7	13. 45	7. 41	·1468					
7. 30	13. 0	8. 17	·1466					
8. 0	10. 0	8. 31	·1470					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	*Readings of Thermometers. Of H. F. Magnet.	*Readings of Thermometers. Of V. F. Magnet.
Dec. 29		Dec. 29						
h m	° ′ ″	h m		h m		h m	°	°
8. 22	20. 9. 20	8. 52	·1468					
8. 30	10. 50	9. 10	·1470					
8. 40	10. 20	9. 53	·1472					
8. 59	10. 50	10. 51	·1466					
9. 39	11. 0	11. 27	·1475					
10. 46	12. 20	11. 58	·1472					
11. 15	9. 50	12. 11	·1475					
11. 30	11. 50	12. 26	·1473					
12. 7	10. 20	13. 11	·1466					
12. 30	11. 30	13. 24	·1471					
12. 46	10. 10	14. 0	·1468					
13. 59	10. 55	14. 32	·1472					
14. 17	11. 50	14. 52	·1469					
14. 36	13. 0	16. 20	·1470					
14. 46	12. 30	16. 59	·1477					
15. 31	14. 0	17. 21	·1474					
16. 5	13. 0	18. 10	·1474					
16. 59	17. 0	19. 9	·1475					
17. 8	17. 0	19. 46	·1476					
17. 30	14. 10	23. 10	·1473					
20. 2	14. 10	23. 32	·1478					
20. 16	14. 50	23. 59	·1476					
20. 35	13. 50							
20. 51	14. 10							
20. 57	13. 0							
21. 2	14. 20							
22. 35	15. 45							
23. 0	15. 0							
23. 59	15. 30							
Dec. 30		Dec. 30				Dec. 30		
0. 0	20. 15. 30	0. 0	·1476			0. 0	59 ·8	60 ·0
0. 29	17. 0	1. 21	·1479			1. 0	59 ·9	60 ·0
0. 43	16. 0	1. 38	·1476			2. 0	60 ·2	60 ·2
1. 2	17. 0	2. 0	·1479			3. 0	60 ·2	61 ·0
1. 50	15. 55	2. 58	·1460			4. 0	59 ·5	60 ·1
2. 8	16. 30	3. 13	·1471			6. 0	59 ·8	59 ·9
2. 29	15. 55	3. 51	·1472			9. 0	60 ·0	60 ·0
2. 37	16. 0	4. 2	·1478			21. 0	59 ·2	58 ·7
2. 57	13. 50	4. 40	·1470			22. 0	59 ·8	59 ·3
3. 6	11. 45	5. 29	·1476			23. 0	59 ·8	59 ·3
3. 18	11. 30	7. 3	·1473					
3. 46	15. 0	7. 23	·1477					
3. 50	14. 0	7. 49	·1472					
4. 6	15. 50	8. 18	·1489					
4. 13	14. 0	8. 50	·1478					
4. 20	15. 0	9. 38	·1474					
5. 29	13. 55	10. 39	·1476					
5. 51	14. 40	11. 12	·1473					
6. 17	14. 0	11. 54	·1475					
6. 30	14. 50	12. 35	·1473					
7. 28	12. 50	12. 59	·1476					
7. 50	14. 0	14. 2	·1474					
8. 20	8. 30	14. 14	·1478					
8. 33	10. 0	14. 40	·1474					
8. 51	9. 30	15. 0	·1476					
9. 35	13. 0	15. 17	·1474					
10. 0	13. 20	15. 32	·1478					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol *** denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Dec. 30	° ′ ″	Dec. 30					°	°
h m s		h m s		h m		h m		
11. 20	20. 12. 0	15. 50	·1476					
11. 40	12. 30	16. 22	·1481					
11. 56	12. 0	18. 5	·1480					
13. 13	13. 30	18. 59	·1477					
13. 40	13. 30	19. 22	·1482					
14. 1	15. 0	20. 15	·1475					
14. 21	13. 30	20. 28	·1479					
14. 40	15. 0	21. 31	·1475					
14. 59	14. 0	22. 1	·1477					
15. 13	15. 5		(†)					
15. 32	14. 0							
16. 3	14. 0							
16. 25	12. 30							
17. 22	11. 55							
17. 37	12. 50							
18. 25	12. 50							
18. 35	13. 55							
18. 42	13. 20							
20. 10	13. 55							
20. 20	13. 0							
20. 45	13. 5							
20. 52	13. 40							
21. 21	12. 30							
21. 30	13. 5							
21. 40	13. 0							
23. 10	14. 30							
23. 30	15. 50							
23. 45	15. 0							
23. 52	15. 30							
23. 59	15. 0							
Dec. 31		Dec. 31				Dec. 31		
0. 0	20. 15. 0		(†)			1. 0	49 ·6	49 ·0
0. 22	14. 0	9. 47	·1472			2. 0	51 ·3	50 ·9
1. 52	16. 40	9. 58	·1470			3. 0	55 ·5	54 ·6
2. 6	15. 10	10. 6	·1473			6. 0	57 ·2	57 ·7
2. 17	16. 20	10. 21	·1464			9. 0	58 ·8	59 ·2
2. 22	14. 30	10. 41	·1474			9. 30	58 ·7	59 ·2
2. 45	15. 0	11. 2	·1467			21. 0	58 ·7	58 ·3
3. 12	14. 0	12. 12	·1470			22. 0	58 ·7	58 ·3
3. 27	14. 55	12. 20	·1474					

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers. Of H. F. Magnet.	Readings of Thermometers. Of V. F. Magnet.
Dec. 31	° ′ ″	Dec. 31					°	°
h m s		h m s		h m		h m		
3. 40	20. 14. 30	12. 40	·1469					
3. 47	15. 0	13. 10	·1487					
4. 5	14. 0	14. 1	·1475					
7. 0	13. 50	14. 52	·1472					
7. 15	14. 0	15. 28	·1476					
7. 41	13. 20	16 43	·1479					
9. 17	12. 0	18. 5	·1477					
9. 28	12. 20	18. 57	·1482					
9. 35	11. 30	19. 34	·1477					
9. 50	11. 0	19. 47	·1480					
10. 8	9. 30	20. 49	·1468					
10. 15	10. 0	22. 11	·1475					
10. 34	10. 0		(†)					
10. 41	9. 30							
10. 51	11. 30							
11. 9	10. 30							
11. 37	11. 30							
11. 58	11. 0							
12. 18	11. 30							
12. 25	12. 0							
12. 36	11. 0							
12. 49	11. 50							
13 3	11. 50							
13. 26	12. 0							
13. 38	10. 0							
13. 57	11. 0							
14. 28	8. 30							
15. 44	13. 10							
16. 20	11. 40							
16. 51	12. 40							
17. 10	12. 10							
17. 25	13. 20							
18. 42	15. 30							
18. 55	15. 0							
20. 30	15. 20							
20. 55	14. 30							
21. 48	16. 0							
22. 15	15. 30							
22. 30	14. 30							
23. 5	14. 0							
23. 59	14. 45							

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

December 31. Experiments for ascertaining the effect of temperature on the position of the Horizontal Force Magnet were began on this day.

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INDICATIONS of the GALVANOMETERS measuring SPONTANEOUS GALVANIC CURRENTS at the Royal Observatory, Greenwich, in the Year 1865.

Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.	Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1865, Oct. 5			1865, Oct. 5		
h m			h m		
0. 0	0·00635	0·00185	8. 24	0·00636	0·00501
0. 15	635	200	8. 29	630	455
0. 22	628	304	8. 35	622	551
0. 36	620	239	8. 40	630	390
0. 43	620	140	9. 1	610	370
0. 56	626	325	9. 6	612	325
1. 5	635	039	9. 10	610	429
1. 11	618	265	9. 15	618	330
1. 27 Z	628	296	9. 22	615	437
2. 42 Z	628	296	9. 24	618	385
2. 43	628	100	9. 27	625	226
2. 48	590	381	9. 28	620	721
3. 12	625	116	9. 34	630	527
3. 16	625	188	9. 37	565	593
3. 18	625	113	9. 54	680	121
3. 21	625	204	9. 58	700	+ 306
3. 23	625	139	10. 7	640	− 139
3. 29	625	211	10. 24	562	+ 1195
3. 33	625	169	10. 46	785	− 511
3. 38	625	266	11. 5	600	+ 388
3. 45	627	131	11. 10	625	308
3. 51	626	185	11. 15	605	380
3. 57	620	110	11. 24	623	298
3. 59	620	195	11. 27	623	381
4. 10	620	197	11. 31	628	308
4. 12	620	319	11. 38	618	370
4. 16	610	214	11. 39	618	282
4. 25	580	691	11. 45	628	375
4. 33	706	296	12. 5	668	099
4. 35	662	+ 440	12. 9	646	235
4. 43	705	− 107	12. 18	628	215
4. 45	600	+ 305	12. 19	628	266
4. 52	616	213	12. 30	627	184
4. 58	590	+ 740	13. 2	628	226
5. 11	686	− 093	13. 7	634	150
5. 32	580	+ 622	13. 12	628	185
5. 48	665	185	13. 14	628	160
5. 56	616	279	13. 16	628	225
6. 1	610	240	13. 22	618	151
6. 5	600	282	13. 27	618	255
6. 11	598	254	13. 36	618	110
6. 14	595	435	13. 47	629	238
6. 20	630	300	13. 54	640	195
6. 27	575	701	14. 4	640	162
6. 35	770	042	14. 9	630	215
6. 44	605	+ 528	14. 13	632	165
6. 57	730	− 029	14. 21	645	221
7. 5	658	− 149	14. 32	635	026
7. 15	580	+ 236	14. 37	630	131
7. 24	590	382	14. 42	630	079
7. 35	620	307	14. 45	632	130
7. 43	620	561	14. 48	638	070
7. 52	630	346	14. 59	636	240
7. 57	650	378	15. 32	616	310
8. 0	640	345	15. 38	619	288
8. 9	620	449	15. 46	620	350
8. 16	620	300	15. 58	634	168

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.	Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1865, Oct. 5 h m			1865, Oct. 5 h m		
16. 10	0·00644	0·00310	23. 30	0·00620	0·00519
16. 24	620	669	23. 44	655	085
16. 26	670	226	23. 46	630	260
16. 29	625	390	23. 51	635	090
16. 31	625	128	23. 57	640	210
16. 37	625	265	23. 59	636	118
16. 41	626	188			
16. 48	625	257			
16. 54	628	222	Oct. 31		
17. 0	625	310	0. 3	0·00610	0·00400
17. 4	626	230	0. 5	612	650
17. 10	635	270	0. 9	620	405
17. 17	629	164	0. 12	620	545
17. 23	623	230	0. 22	630	202
17. 28	616	179	0. 28	630	360
17. 45	608	+ 320	0. 36	630	069
18. 8	602	− 145	0. 40	630	325
18. 21	615	+ 242	0. 50	630	145
18. 27	631	117	0. 52	630	075
18. 36	620	430	0. 54	630	291
18. 44	625	265	0. 58	620	166
19. 7	638	310	1. 1	620	295
19. 14	638	235	1. 5	630	061
19. 20	635	413	1. 11	610	280
19. 25	630	265	1. 13	600	165
19. 28	654	503	1. 23	580	351
19. 30	655	328	1. 33 Z	638	339
19. 33	650	620	2. 3 Z	638	339
19. 44	626	270	2. 5	640	266
19. 50	615	235	2. 20	625	443
20. 2	618	355	2. 23	625	180
20. 6	620	313	2. 29	590	505
20. 8	624	370	2. 39	650	079
20. 16	632	210	2. 48	590	390
20. 17	632	362	2. 59	586	150
20. 24	634	300	3. 14	555	465
20. 32	630	525	3. 24	630	287
20. 39	630	329	3. 38	636	483
20. 44	624	376	3. 48	630	201
20. 52	620	215	4. 5	600	465
20. 57	620	323	4. 19	625	279
21. 15	630	452	4. 29	620	360
21. 27 Z	628	300	4. 42	620	228
21. 39 Z	628	300	4. 47	620	260
21. 41	630	270	4. 53	615	235
21. 46	630	430	4. 57	616	270
21. 57	616	165	5. 7	621	401
22. 3	606	327	5. 16	640	290
22. 8	615	212	5. 28	610	371
22. 18	625	333	5. 39	626	343
22. 25	625	250	5. 44	625	425
22. 35	605	390	5. 50	620	372
22. 48	610	255	5. 59	610	546
22. 57	613	398	6. 4	660	320
23. 6	619	241	6. 11	630	401
23. 13	619	424	6. 15	640	251
23. 26	615	225	6. 37	615	419

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.	Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1866, Oct 4 h m			1866, Oct. 4 h m		
11. 3	0·00630	0·00680	16. 54	0·00635	0·00588
11. 12	650	749	17. 0	638	416
11. 26	638	500	17. 6	635	457
11. 30	645	462	17. 11	635	416
11. 40	635	651	17. 15	635	492
11. 50	640	590	17. 17	635	417
11. 54	638	605	17. 22	640	507
12. 0	640	530	17. 31	646	514
12. 3	610	463	17. 43	640	591
12. 10	610	541	17. 47	640	555
12. 11	610	300	17. 57	640	657
12. 16	616	390	18. 11	640	540
12. 19	630	355	18. 16	640	586
12. 23	650	425	18. 24	630	466
12. 31	650	405	18. 31	650	666
12. 36	652	325	18. 35	658	570
12. 41	650	400	18. 38	660	655
12. 48	652	450	18. 41	665	530
12. 51	655	437	18. 46	665	605
13. 4	648	555	18. 59	655	358
13. 7	648	520	19. 7	655	480
13. 22	650	635	19. 10	650	319
13. 25	653	573	19. 26	620	530
13. 30	653	620	19. 28	620	386
13. 43	650	314	19. 37	620	579
13. 46	645	423	19. 57	628	630
13. 50	640	412	20. 12	630	492
13. 57	638	520	20. 18	630	629
14. 1	638	414	20. 25	635	525
14. 4	638	498	20. 30	640	552
14. 6	635	414	20. 35	640	492
14. 14	625	520	20. 37	640	540
14. 18	632	457	20. 44	640	407
14. 23	625	550	20. 48	645	473
14. 26	630	409	20. 55	635	444
14. 33	640	559	21. 5	640	530
14. 40	636	421	21. 16 Z	665	670
14. 43	640	452	21. 27 Z	665	670
14. 45	643	432	21. 30	640	412
14. 47	643	468	21. 48	640	595
14. 49	650	410	21. 53	635	470
14. 56	653	513	21. 58	625	635
15. 2	660	477	22. 1	625	444
15. 7	655	530	22. 14	620	611
15. 12	640	428	22. 17	630	440
15. 16	650	512	22. 25	645	580
15. 18	670	487	22. 40	640	305
15. 26	648	600	22. 50	630	586
15. 30	635	486	22. 52	640	405
15. 43	650	623	22. 57	640	570
15. 58	623	445	23. 4	638	466
16. 6	630	557	23. 12	650	575
16. 31	635	573	23. 14	650	429
16. 36	625	476	23. 21	640	493
16. 43	630	558	23. 37	650	425
16. 51	635	455	23. 43	636	500

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.	Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, April 4 h m			1867, April 4 h m		
0. 0	0·00816	0·00278	9. 9	0·00820	0·00519
0. 1	816	381	9. 19 Z	830	565
0. 19	818	342	9. 25 Z	830	565
0. 26	815	449	9. 28	830	365
0. 33	816	080	9. 45	830	221
0. 47	818	115	9. 58	822	425
0. 53	819	180	10. 3	824	420
0. 55	815	495	10. 7	820	390
0. 57	815	419	10. 11	820	470
1. 1	810	706	10. 15	820	432
1. 30	822	089	10. 23	818	470
1. 39	820	309	10. 29	818	436
1. 51	816	355	10. 37	820	408
2. 1	815	191	10. 42	820	426
2. 14	815	450	11. 11	822	436
2. 31	814	427	11. 16	820	400
2. 39	816	358	11. 28	820	456
2. 45 Z	820	566	11. 52	831	349
2. 58 Z	820	566	12. 13	824	450
3. 0	820	590	12. 22	822	476
3. 15	812	548	12. 32	814	440
3. 18	810	560	12. 41	815	434
3. 22	810	520	12. 59	822	317
3. 27	815	525	13. 18	822	416
3. 31	818	510	13. 31	823	461
3. 39	820	540	13. 50	824	418
3. 50	820	346	13. 59	820	424
4. 0	825	321	14. 2	822	365
4. 10	816	358	14. 13	820	369
4. 14	812	376	14. 31	820	439
4. 20	812	360	14. 40	822	439
4. 37	815	376	15. 2	825	346
4. 42	815	363	15. 28	820	401
4. 45	816	394	20. 38	825	417
4. 59	815	405	20. 48	824	405
5. 19	815	385	21. 8	825	425
5. 29	812	423	21. 23 Z	825	563
5. 36	815	389	21. 34 Z	825	563
5. 54	820	485	21. 37	823	428
5. 57	816	450	21. 49	820	360
6. 4	826	476	21. 53	820	435
6. 10	830	444	22. 0	823	378
6. 13	836	465	22. 4	824	428
6. 24	865	186	22. 8	825	426
6. 30	840	196	22. 12	825	380
6. 36	835	180	22. 18	825	366
6. 50	805	589	22. 25	824	399
7. 1	820	532	22. 28	820	378
7. 6	820	535	22. 37	822	388
7. 12	815	512	22. 51	825	385
7. 25	806	560	22. 56	825	380
7. 33	814	528	23. 9	825	371
7. 40	810	531	23. 12	825	404
8. 5	822	500	23. 21	825	359
8. 24	820	516	23. 39	824	345
8. 30	820	460			
9. 1	820	485			

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.	Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, April 8			1867, April 8		
h m			h m		
0. 6	0·00810	0·00300	8. 46 Z	0·00820	0·00470
0. 16	810	262	8. 48	818	430
0. 18	810	305	8. 56	815	435
0. 22	811	248	8. 59	815	395
0. 37	810	322	9. 4	820	422
0. 50	810	335	9. 9	820	410
0. 53	810	306	9. 14	820	435
1 1	810	369	9. 17	816	419
1. 7	810	305	9. 25	816	428
1. 15	810	248	9. 32	820	370
1. 35	810	300	9. 48	816	380
1. 44	813	295	10. 10	820	370
1. 50	815	284	10. 14	820	325
1. 58	814	273	10. 17	821	352
2. 2	814	297	10. 21	820	341
2. 5	813	280	10. 26	820	355
2. 32	813	270	10. 38	820	338
2. 34 Z	815	474	10. 47	820	385
2. 45 Z	815	474	10. 51	821	391
2. 50	815	247	10. 59	822	377
2. 53	815	257	11. 13	815	449
3. 0	814	240	11. 30	820	295
3. 5	815	262	11. 43	819	374
3. 12	815	243	11. 56	820	405
3. 24	815	255	12. 22	810	353
3. 31	815	230	12. 36	820	429
3. 38	814	255	12. 50	820	418
3. 45	813	242	12. 55	819	310
3. 56	810	263	13. 18	821	340
4. 1	810	254	13. 25	820	374
4. 8	810	262	13. 43	820	399
4. 42	815	250	13. 48	819	450
4. 46	816	200	14. 12	818	409
4. 52	815	252	14. 14	816	370
5. 2	814	260	14. 29	819	370
5. 9	815	232	14. 37	820	315
5. 17	815	255	15. 11	822	366
5. 32	815	258	15. 55	820	360
5. 36	820	385	16. 11	820	304
5. 43	830	466	16. 34	820	305
6. 0	816	109	16. 43	820	320
6. 29	814	385	17. 6	820	285
6. 39	816	364	17. 17	819	304
6. 41	816	375	17. 28	819	303
6. 57	815	260	17. 40	819	320
7. 5	820	280	17. 46	816	311
7. 11	818	262	18. 1	815	370
7. 23	815	340	18. 8	811	345
7. 34	815	341	18. 18	815	415
7. 43	819	368	18. 25	817	345
7. 49	821	382	18. 50	815	384
7. 57	815	357	19. 0	814	372
8. 0	818	375	19. 13	820	417
8. 14	820	373	19. 20	816	313
8. 22	820	290	19. 32	818	362
8. 28	820	378	19. 39	816	341
8. 40 Z	820	470	19. 50	814	350

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, April 8 h m		
20. 11	0·00814	0·00395
20. 24	810	366
20. 36	815	392
21. 11	818	394
21. 25 Z	824	469
21. 35 Z	824	469
21. 36	814	400
21. 57	810	383
22. 39	810	399
22. 41	811	344
22. 50	810	360
23. 1	810	355
23. 18	812	392
23. 26	813	356
23. 31	810	365
23. 54	810	360
April 9		
0. 1	0·00815	0·00414
0. 2	815	355
0. 14	810	395
0. 18	809	425
0. 21	808	427
0. 28	809	370
0. 33	810	429
0. 47	812	300
0. 54	812	419
1. 1	813	377
1. 19	814	386
1. 30	814	328
1. 45	814	436
1. 53	813	404
1. 58	813	436
2. 1	813	387
2. 3	815	404
2. 11	818	385
2. 13	818	403
2. 14	817	361
2. 29	813	320
2. 38	816	370
2. 45	820	375
2. 48 Z	821	518
2. 57 Z	821	518
3. 1	813	455
3. 12	819	530
3. 13	818	490
3. 20	820	530
3. 27	820	344
3. 42	819	267
3. 46	818	310
3. 55	817	310
3. 59	818	360
4. 7	814	360
4. 10	814	400
4. 13	814	381
4. 20	813	414
4. 25	813	380

Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, April 9 h m		
4. 35	0·00820	0·00510
4. 43	818	395
4. 50	816	345
5. 6	816	470
5. 10	812	428
5. 22	818	495
5. 27	822	402
5. 31	822	420
5. 37	825	419
5. 42	823	400
5. 55	820	312
6. 3	817	341
6. 9	814	320
6. 14	818	356
6. 20	817	450
6. 28	815	412
6. 38	830	435
6. 43	833	532
6. 57	813	205
7. 9	815	480
7. 15	815	420
7. 49	815	424
8. 10	820	456
8. 32	815	435
8. 38	815	435
8. 50 Z	820	519
9. 4 Z	820	519
9. 9	816	449
10. 4	815	470
11. 6	816	474
11. 7	816	490
12. 5	815	494
13. 20	816	475
13. 35	816	454
13. 51	816	485
14. 15	817	440
14. 56	816	449
16. 20	820	430
17. 20	819	419
18. 14	820	445
18. 17	819	427
18. 37	815	454
18. 40	814	433
18. 54	814	405
19. 7	816	433
19. 42	816	423
19. 51	818	455
19. 55	818	430
20. 25	818	453
20. 38	817	430
20. 42	816	446
20. 51	815	438
21. 6	814	463
21. 15 Z	825	515
21. 28 Z	825	515
21. 29	816	445
21. 45	810	465

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, May 4 h m		
20. 27	0·00810	0·00260
21. 8	805	289
21. 13	800	350
21. 21	802	368
21. 22	802	356
21. 32	804	395
21. 41	805	299
21. 55	810	330
22. 10	820	286
22. 20	822	139
22. 22 Z	825	370
22. 30 Z	825	370
22. 31	815	150
22. 37	811	200
22. 42	810	179
May 14		
0. 5	0·00783	0·00236
0. 16	784	263
0. 24	784	234
0. 30	784	263
0. 43	784	255
0. 55	784	268
1. 7	784	260
1. 19	784	274
1. 27	784	263
1. 31	783	295
1. 56	784	276
2. 3	783	298
2. 23	784	209
2. 24 Z	816	409
2. 31 Z	816	409
2. 39	782	247
2. 48	782	339
3. 2	784	320
3. 15	784	361
3. 18	784	305
3. 24	784	365
3. 30	785	304
3. 59	786	309
4. 5	786	245
4. 12	786	280
4. 26	785	268
4. 31	785	235
4. 34	786	290
4. 47	788	190
5. 10	783	327
5. 12	783	316
5. 20	789	379
5. 34	790	183
5. 40	785	216
5. 42	785	160
5. 47	784	330
5. 53	782	299
5. 59	784	360
6. 30	787	354
6. 35	787	318
1867, May 14 h m		
6. 39	0·00787	0·00326
6. 43	787	290
6. 49	786	307
6. 56	786	290
7. 5	786	309
7. 21	788	321
7. 29	788	307
7. 35	789	323
7. 40	788	299
7. 44	788	315
7. 52	788	284
8. 6	788	297
8. 27	789	291
8. 39 Z	820	410
8. 48 Z	820	410
8. 54	790	280
9. 22	790	304
9. 35	791	295
9. 40	792	310
9. 45	794	269
10. 3	820	324
10. 10	820	322
10. 19	820	170
10. 37	822	387
10. 48	823	346
11. 14	822	256
11. 21	822	338
11. 25	823	356
11. 37	824	289
11. 44	824	310
12. 12	824	266
12. 20	824	324
12. 30	824	265
12. 35	824	296
12. 46	824	263
12. 55	824	325
13. 0	824	308
13. 4	824	328
13. 9	824	303
13. 19	824	330
13. 27	824	300
13. 32	824	341
13. 40	824	284
13. 45	824	325
13. 52	824	340
14. 3	824	279
14. 13	824	310
14. 21	824	236
14. 25	824	309
14. 27	824	273
14. 33	824	305
14. 42	824	267
14. 49	824	305
14. 58	824	290
15. 9	824	300
15. 18	824	273
15. 44	824	299

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, May 14 h m		
17. 16	0·00824	0·00328
17. 22	824	314
19. 2	824	323
20. 50	824	310
20. 57	824	290
21. 4	824	304
21. 16 Z	824	410
21. 28 Z	824	410
21. 29	824	270
21. 40	824	299
22. 35	824	246
22. 39	824	273
22. 44	824	272
May 28		
0. 5	0·00765	0·00384
0. 8	765	243
0. 14	765	300
0. 15	765	393
0. 22	765	370
0. 28	768	539
0. 31	768	367
0. 33	768	425
0. 43	765	355
0. 46	765	415
0. 51	765	340
0. 55	765	405
1. 0	765	346
1. 8	764	526
1. 17	755	390
1. 22	761	547
1. 24	761	495
1. 31	762	658
1. 43	770	350
1. 52	770	590
2. 0	760	340
2. 15	770	606
2. 21	770	461
2. 30	770	634
2. 37	770	464
2. 39	775	500
2. 44	775	280
2. 45 Z	775	591
2. 57 Z	775	591
2. 57	765	260
3. 0	765	423
3. 2	770	287
3. 8	770	376
3. 14	770	329
3. 16	770	365
3. 17	770	246
3. 24	770	433
3. 30	770	200
3. 32	770	285
3. 39	765	226
3. 46	765	450
3. 51	765	419

Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, May 28 h m		
4. 8	0·00767	0·00465
4. 13	770	428
4. 15	770	440
4. 17	770	390
4. 25	770	413
4. 29	770	312
4. 36	770	395
4. 41	770	418
4. 43	770	403
4. 45	770	450
4. 53	770	400
5. 17	770	454
5. 39	770	404
5. 48	770	470
6. 5	770	425
6. 11	770	445
6. 17	770	402
6. 40	770	461
6. 55	866	440
7. 10	810	+ 735
7. 23	770	− 055
7. 37	770	+ 360
7. 52	770	419
8. 0	770	377
8. 10	765	619
8. 35	764	565
8. 41	764	460
8. 59	770	515
9. 12	770	464
9. 21 Z	780	599
9. 34 Z	780	599
9. 35	780	420
9. 40	783	453
9. 48	780	320
10. 5	769	394
10. 27	770	458
10. 32	770	548
10. 41	743	382
10. 45	750	438
11. 37	765	390
11. 50	765	427
11. 53	768	392
11. 58	770	440
12. 8	773	418
12. 45	762	475
12. 47	760	692
13. 29	760	586
13. 32	760	305
14. 14	776	324
14. 51	770	305
15. 15	764	373
15. 25	763	373
15. 47	763	313
15. 51	767	342
15. 58	768	341
16. 19	772	406
16. 30	770	383

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.	Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, June 2 h m			1867, June 2 h m		
1. 19	0·00808	0·00323	21. 53	0·00810	0·00460
1. 26	808	361	22. 4	810	444
1. 51	802	360	23. 10	808	427
2. 8	804	418			
2. 15	801	386	June 7		
2. 22	810	400	0. 3	0·00805	0·00365
2. 31	810	253	0. 29	805	294
2. 51	810	370	0. 32	805	317
2. 56	814	346	0. 43	805	250
3. 5	762	388	0. 47	805	260
3. 15	816	765	0. 53	805	225
3. 35	823	364	1. 5	803	313
3. 44	820	330	1. 15	805	315
3. 50	818	356	1. 22	800	350
3. 57	818	332	1. 29	802	331
4. 9	824	348	1. 31	802	367
4. 19	808	156	1. 45	807	299
4. 32	810	349	1. 50	810	320
4. 48	810	348	1. 54	811	260
5. 13	811	420	1. 58	813	285
5. 25	806	401	2. 19	815	145
5. 37	818	434	2. 25	810	270
5. 50	814	399	2. 30	805	213
6. 31	812	424	2. 38	815	410
6. 37	814	490	2. 41 Z	815	375
6. 45	811	458	2. 49 Z	815	375
6. 56	810	482	2. 55	820	+ 410
8. 8	816	470	3. 2	790	− 235
8. 18 Z	816	515	3. 11	805	+ 445
8. 25 Z	816	515	3. 16	805	382
8. 27	814	450	3. 21	803	420
8. 30	812	460	3. 29	807	424
8. 41	810	439	3. 33	810	370
9. 11	811	475	3. 37	811	380
9. 35	811	456	3. 42	815	340
10. 35	812	458	3. 44	816	350
11. 0	815	443	3. 45	818	310
11. 4	817	424	3. 51	814	340
13. 42	815	415	3. 59	815	043
13. 55	814	383	4. 10	810	278
17. 32	814	433	4. 14	805	249
17. 42	814	460	4. 16	807	309
18. 7	814	436	4. 25	810	235
18. 16	814	463	4. 33	810	255
18. 33	812	438	4. 40	814	180
18. 43	812	458	4. 54	810	242
18. 48	814	426	4. 55	810	215
18. 57	806	522	5. 0	810	250
19. 1	809	393	5. 3	811	220
19. 7	812	435	5. 4	811	240
19. 32	810	452	5. 10	812	210
19. 38	810	500	5. 27	811	250
19. 46	810	449	5. 32	811	220
21. 10	811	477	5. 36	813	252
21. 22 Z	816	525	5. 41	814	212
21. 34 Z	816	525	5. 44	810	222
21. 39	812	450	5. 45	810	201

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.	Greenwich Mean Solar Time.	Measure of Ordinate of Dartford Curve by Scale G.	Measure of Ordinate of Croydon Curve by Scale H.
1867, June 7			1867, June 7		
h m			h m		
5. 53	0·00814	0·00249	14. 25	0·00815	0·00303
5. 56	814	201	14. 32	816	269
5. 58	814	217	14. 41	816	315
6. 10	814	161	14. 51	814	275
6. 15	810	193	14. 59	814	297
6. 20	810	180	15. 10	816	245
6. 24	809	232	15. 11	816	253
6. 27	809	229	15. 13	816	248
6. 30	811	267	15. 22	816	322
6. 38	810	197	15. 35	816	277
6. 54	805	325	15. 40	816	265
7. 11	805	255	15. 45	816	300
7. 20	809	340	16. 3	816	238
7. 27	810	327	16. 12	816	300
7. 29	810	342	16. 19	816	277
7. 39	818	296	16. 22	816	300
7. 42	815	309	16. 27	816	252
7. 51	810	249	16. 37	816	265
7. 56	810	299	16. 40	816	253
8. 1	810	276	16. 45	816	290
8. 9	810	315	16. 47	816	263
8. 15	815	292	16. 52	816	285
8. 17	814	325	16. 57	816	253
8. 26	812	250	17. 8	816	297
8. 30	810	265	17. 15	816	238
8. 36	812	220	17. 23	816	290
8. 47 Z	820	377	17. 26	816	240
8. 59 Z	820	377	17. 30	816	334
8. 59	810	330	17. 40	816	241
9. 5	806	250	17. 45	816	282
9. 16	810	313	17. 50	816	249
9. 20	810	275	19. 40	810	288
9. 31	810	290	20. 29	806	260
9. 37	810	270	20. 39	810	307
9. 43	810	300	20. 47	810	265
9. 48	810	262	20. 53	810	291
9. 53	810	291	20. 55	810	222
10. 7	810	276	21. 10	806	290
10. 15	810	297	21. 25 Z	820	374
10. 43	810	300	21. 38 Z	820	374
10. 48	810	255	21. 43	811	270
11. 1	810	295	22. 17	811	270
11. 23	811	342	22. 23	811	228
11. 48	811	285	22. 41	805	290
12. 20	814	315	23. 2	805	241
12. 33	814	294	23. 10	805	280
12. 38	814	310			
12. 44	814	279	June 24		
12. 51	814	309	0. 0	0·00807	0·00226
13. 3	814	302	0. 4	806	240
13. 10	813	318	0. 7	806	197
13. 12	813	298	0. 14	808	234
13. 17	813	310	0. 17	807	224
13. 23	813	285	0. 25	810	262
13. 27	813	303	0. 30	810	184
13. 41	813	274	0. 47	810	268
13. 50	814	297	1. 5	810	138

The ordinates of the Dartford Curve are measured with Scale G, in which 0·01000 = 5·47 inch. Those of the Croydon Curve are measured with Scale H, in which 0·01000 = 4·90 inch. The letter Z (for zero) denotes that ordinates have been measured when the galvanic circuit was interrupted and the galvanometer took its quiescent position.

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RESULTS of OBSERVATIONS of MAGNETIC DIP, on each Day of Observation.

Day and Approximate Hour, 1867.		Needle.	Length of Needle.	Magnetic Dip.	Observer.
	d h			° ′ ″	
January	11. 2	D 1	3 inches	68. 0. 10	N
	19. 3	B 1	9 ,,	67. 56. 59	N
	26. 3	D 2	3 ,,	67. 57. 26	N
	29. 2	C 1	6 ,,	67. 56. 29	N
	30. 2	C 2	6 ,,	67. 59. 11	N
	30. 22	B 2	9 ,,	67. 57. 25	N
	31. 0	B 1	9 ,,	67. 54. 51	N
	31. 1	C 1	6 ,,	67. 59. 8	N
	31. 2	D 1	3 ,,	67. 54. 47	N
February	8. 2	C 1	6 ,,	67. 54. 55	N
	12. 0	C 2	6 ,,	67. 59. 26	N
	12. 2	D 1	3 ,,	68. 1. 1	N
	15. 2	D 2	3 ,,	68. 0. 24	N
	23. 2	C 1	6 ,,	67. 58. 5	N
	27. 2	B 1	9 ,,	67. 55. 55	N
	27. 22	B 2	9 ,,	68. 0. 24	N
	27. 23	C 2	6 ,,	68. 1. 31	N
	28. 1	D 2	3 ,,	68. 2. 4	N
March	5. 2	D 1	3 ,,	67. 57. 9	N
	16. 3	D 2	3 ,,	67. 59. 45	N
	26. 0	C 1	6 ,,	67. 56. 38	N
	26. 1	D 1	3 ,,	67. 56. 38	N
	28. 0	D 2	3 ,,	67. 59. 17	N
	29. 2	B 1	9 ,,	67. 55. 18	N
	30. 2	B 2	9 ,,	67. 57. 44	N
	30. 3	C 2	6 ,,	67. 57. 16	N
April	5. 2	B 1	9 ,,	67. 56. 8	N
	9. 1	C 1	6 ,,	67. 57. 39	N
	17. 22	B 2	9 ,,	67. 55. 59	N
	17. 23	D 1	3 ,,	67. 59. 24	N
	27. 2	B 1	9 ,,	67. 56. 5	N
	27. 2	D 2	3 ,,	67. 56. 59	N
	30. 2	C 2	6 ,,	67. 58. 19	N
May	4. 2	C 1	6 ,,	67. 56. 13	N
	8. 2	C 2	6 ,,	67. 55. 42	N
	14. 2	D 1	3 ,,	67. 54. 32	N
	17. 1	D 2	3 ,,	67. 54. 24	N
	17. 2	C 1	6 ,,	67. 56. 51	N
	24. 2	C 2	6 ,,	67. 59. 51	N
	30. 0	B 1	9 ,,	68. 0. 2	N
	30. 1	B 2	9 ,,	68. 0. 11	N
June	6. 2	D 1	3 ,,	68. 1. 34	N
	11. 2	D 2	3 ,,	67. 54. 21	N
	11. 23	D 1	3 ,,	67. 58. 6	N
	12. 0	C 1	6 ,,	67. 58. 35	N
	20. 1	C 2	6 ,,	67. 58. 39	N
	20. 2	B 1	9 ,,	67. 55. 18	N
	25. 1	B 2	9 ,,	68. 0. 38	N
	27. 1	D 2	3 ,,	67. 58. 9	N
July	6. 2	D 1	3 inches	67. 57. 57	N
	11. 2	D 2	3 ,,	67. 55. 20	N
	17. 1	B 1	9 ,,	67. 52. 25	N
	23. 0	C 1	6 ,,	67. 56. 55	N
	23. 2	C 2	6 ,,	67. 51. 4	N
	24. 2	C 2	6 ,,	67. 59. 53	N
	24. 2	D 2	3 ,,	67. 56. 48	N
	31. 1	B 2	9 ,,	67. 57. 57	N
	31. 2	B 1	9 ,,	67. 55. 35	N
August	9. 2	C 1	6 ,,	68. 2. 10	N
	12. 2	C 2	6 ,,	67. 55. 33	N
	12. 22	D 1	3 ,,	67. 58. 22	N
	13. 0	B 1	9 ,,	67. 57. 45	N
	21. 2	C 1	6 ,,	67. 57. 43	N
	28. 2	B 2	9 ,,	67. 53. 32	N
	29. 23	C 1	6 ,,	67. 55. 54	N
	30. 1	B 2	9 ,,	67. 56. 27	N
	31. 2	C 2	6 ,,	67. 54. 25	N
September	4. 2	D 1	3 ,,	67. 58. 21	N
	9. 22	D 2	3 ,,	68. 0. 3	N
	9. 23	D 1	3 ,,	67. 59. 30	N
	10. 0	C 1	6 ,,	68. 2. 47	N
	11. 22	C 1	6 ,,	67. 56. 51	N
	26. 2	D 2	3 ,,	67. 58. 16	N
	26. 3	B 1	9 ,,	68. 0. 36	N
	30. 2	B 2	9 ,,	67. 57. 15	N
	30. 3	C 2	6 ,,	67. 57. 16	N
October	4. 1	B 1	9 ,,	67. 55. 36	N
	16. 2	C 1	6 ,,	67. 56. 42	N
	19. 2	C 2	6 ,,	67. 57. 56	N
	23. 2	B 2	9 ,,	67. 56. 44	N
	26. 2	D 1	3 ,,	68. 1. 8	N
	31. 2	D 2	3 ,,	67. 59. 48	N
November	8. 1	C 1	6 ,,	67. 56. 27	N
	8. 2	D 1	3 ,,	67. 58. 37	N
	19. 2	C 2	6 ,,	67. 54. 22	N
	23. 2	C 1	6 ,,	67. 54. 29	N
	28. 2	D 2	3 ,,	67. 58. 47	N
	29. 5	B 1	9 ,,	67. 55. 12	N
	30. 1	B 2	9 ,,	67. 54. 2	N
December	9. 2	D 1	3 ,,	67. 54. 2	N
	12. 2	D 2	3 ,,	67. 56. 13	N
	13. 0	B 1	9 ,,	67. 49. 55	N
	13. 1	C 1	6 ,,	67. 55. 26	N
	13. 2	C 2	6 ,,	67. 54. 3	N
	28. 2	D 1	3 ,,	67. 57. 22	N
	30. 22	B 2	9 ,,	67. 50. 43	N
	31. 2	D 2	3 ,,	67. 58. 2	N
	31. 3	B 1	9 ,,	67. 52. 37	N

The initial N is that of Mr. W. C. Nash.

From July 31 to September 9, Needle D 2 was in the hands of Mr. Simms, for the purpose of having a new axle applied.

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MONTHLY MEANS of MAGNETIC DIPS.

Month, 1867.	B 1, 9-inch Needle.	Number of Observations.	B 2, 9-inch Needle.	Number of Observations.	C 1, 6-inch Needle.	Number of Observations.
	° ′ ″		° ′ ″		° ′ ″	
January	67. 55. 55	2	67. 57. 25	1	67. 57. 48	2
February	67. 55. 55	1	68. 0. 24	1	67. 56. 30	2
March	67. 55. 18	1	67. 57. 44	1	67. 56. 38	1
April	67. 56. 7	2	67. 55. 59	1	67. 57. 39	1
May	68. 0. 2	1	68. 0. 11	1	67. 56. 32	2
June	67. 55. 18	1	68. 0. 38	1	67. 58. 35	1
July	67. 54. 0	2	67. 57. 57	1	67. 56. 55	1
August	67. 57. 45	1	67. 54. 59	2	67. 58. 36	3
September	68. 0. 36	1	67. 57. 15	1	67. 59. 49	2
October	67. 55. 36	1	67. 56. 44	1	67. 56. 42	1
November	67. 55. 12	1	67. 54. 2	1	67. 55. 28	2
December	67. 51. 16	2	67. 50. 43	1	67. 55. 26	1
Means	67. 55. 39	Sum 16	67. 56. 51	Sum 13	67. 57. 22	Sum 19

Month, 1867.	C 2, 6-inch Needle.	Number of Observations.	D 1, 3-inch Needle.	Number of Observations.	D 2, 3-inch Needle.	Number of Observations.
	° ′ ″		° ′ ″		° ′ ″	
January	67. 59. 11	1	67. 57. 29	2	67. 57. 26	1
February	68. 0. 29	2	68. 1. 1	1	68. 1. 14	2
March	67. 57. 16	1	67. 56. 54	2	67. 59. 31	2
April	67. 58. 19	1	67. 59. 24	1	67. 56. 59	1
May	67. 57. 47	2	67. 54. 32	1	67. 54. 24	1
June	67. 58. 39	1	67. 59. 50	2	67. 56. 15	2
July	67. 55. 28	2	67. 57. 57	1	67. 56. 4	2
August	67. 54. 59	2	67. 58. 22	1	..	..
September	67. 57. 16	1	67. 58. 55	2	67. 59. 10	2
October	67. 57. 56	1	68. 1. 8	1	67. 59. 48	1
November	67. 54. 22	1	67. 58. 37	1	67. 58. 47	1
December	67. 54. 3	1	67. 55. 42	2	67. 57. 8	2
Means	67. 57. 9	Sum 16	67. 58. 9	Sum 17	67. 58. 0	Sum 17

For this table the monthly means have been formed without reference to the hour at which the observation was made on each day, as in preceding years no certain difference was found between observations taken at 21^h and at 3^h.

In combining the monthly results, to form the annual means, weights have been given proportional to the number of observations.

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ABSTRACT of the OBSERVATIONS of DEFLEXION of a MAGNET for ABSOLUTE MEASURE of HORIZONTAL FORCE.

Month and Day, 1867.	Distances of Centers of Magnets.	Temperature.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature.	Observer.
	ft.	°	° ′ ″	′		°	
January 25	1·0 1·3	46·9	12. 31. 53 5. 40. 42	5·321 5·315	100 100	51·2 51·7	N
February 15	1·0 1·3	54·1	12. 31. 5 5. 39. 58	5·323 5·328	100 100	48·0 54·5	N
March 13	1·0 1·3	34·9	12. 32. 29 5. 40. 49	5·317 5·321	100 100	34·7 36·2	N
March 29	1·0 1·3	47·8	12. 31. 41 5. 40. 26	5·330 5·330	100 100	49·6 51·3	N
April 17	1·0 1·3	54·4	12. 28. 58 5. 39. 17	5·330 5·325	100 100	54·5 57·5	N
May 2	1·0 1·3	63·4	12. 27. 19 5. 38. 18	5·328 5·331	100 100	64·4 66·5	N
May 28	1·0 1·3	65·3	12. 28. 57 5. 39. 50	5·339 5·332	100 100	66·0 66·4	N
June 14	1·0 1·3	63·8	12. 26. 40 5. 38. 11	5·340 5·340	100 100	65·0 64·4	N
June 26	1·0 1·3	70·9	12. 25. 16 5. 37. 18	5·328 5·330	100 100	72·5 75·8	N
July 19	1·0 1·3	65·3	12. 24. 50 5. 37. 26	5·337 5·346	100 100	66·0 67·0	N
August 22	1·0 1·3	71·7	12. 24. 25 5. 37. 8	5·350 5·342	100 100	71·9 76·4	N
September 12	1·0 1·3	71·7	12. 21. 35 5. 35. 51	5·348 5·352	100 100	74·9 77·8	N
October 31	1·0 1·3	59·0	12. 22. 28 5. 36. 21	5·363 5·358	100 100	60·8 63·5	N
November 29	1·0 1·3	45·2	12. 22. 35 5. 36. 22	5·349 5·346	100 100	52·5 48·9	N

The position of the Deflecting Magnet with regard to the suspended Magnet is always that which was formerly termed "Lateral." The Deflecting Magnet is placed on the East side of the suspended Magnet, with its marked pole alternately E. and W., and it is placed on the West side with its pole alternately E. and W.; and the deflexion in the table above is the mean of the four deflexions observed in those positions of the magnets.

The lengths of 1 foot and 1·3 foot answer to 304·8 and 396·2 millimètres respectively.

The initial N is that of Mr. W. C. Nash.

In the following calculations every observation is reduced to the temperature 35°.

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COMPUTATION of the VALUES of ABSOLUTE MEASURE of HORIZONTAL FORCE in the Year 1867.

Month and Day, 1867.	In English Measure.									Value of X in French Measure.
	Apparent Value of A^1.	Apparent Value of A^2.	Apparent Value of P.	Mean Value of P.	Log. A corrected by the Application of Mean Value of P. = Log. $\frac{m}{X}$	Adopted Time of Vibration of Deflecting Magnet.	Log. $m X$.	Value of X.	Value of m.	
January 25	+0·10869	0·10888	−0·00429	−0·00289	9·03757	5·3180	0·20907	3·853	0·4201	1·776
February 15	+0·10871	0·10878	−0·00158		9·03740	5·3255	0·20781	3·848	0·4194	1·774
March 13	+0·10856	0·10871	−0·00339		9·03696	5·3190	0·20784	3·850	0·4192	1·775
29	+0·10868	0·10882	−0·00316		9·03741	5·3300	0·20704	3·844	0·4190	1·773
April 17	+0·10841	0·10857	−0·00362		9·03637	5·3275	0·20784	3·852	0·4189	1·776
May 2	+0·10835	0·10843	−0·00181		9·03597	5·3295	0·20814	3·856	0·4189	1·778
28	+0·10862	0·10895	−0·00747		9·03755	5·3355	0·20720	3·844	0·4192	1·773
June 14	+0·10826	0·10840	−0·00317		9·03574	5·3400	0·20639	3·849	0·4179	1·775
26	+0·10820	0·10825	−0·00113		9·03531	5·3290	0·20883	3·861	0·4189	1·780
July 19	+0·10803	0·10818	−0·00341		9·03484	5·3415	0·20626	3·852	0·4174	1·776
August 22	+0·10809	0·10821	−0·00272		9·03502	5·3460	0·20603	3·850	0·4174	1·775
September 12	+0·10768	0·10780	−0·00273		9·03338	5·3500	0·20555	3·856	0·4164	1·778
October 31	+0·10757	0·10772	−0·00342		9·03299	5·3605	0·20288	3·846	0·4149	1·773
November 29	+0·10733	0·10747	−0·00320		9·03202	5·3475	0·20413	3·855	0·4150	1·778

In forming the mean value of P the value for May 28 has been omitted.

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MONTH and DAY, 1867.		Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Greatest.	Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure in lbs. on the square foot. Greatest.	Least.	Mean of 24 Obs.	Robinson's Amount of Horizontal Movement of the Air on each Day.	Rain in Inches, collected in a Gauge whose receiving surface is 5 inches above the Ground.
			in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
Jan.	1	..	29·207	31·5	21·8	26·5	21·2	43·2	19·0	41·4	37·7	5·3	8·9	2·8	−10·8	N	NNW : SW	1·3	0·0	0·1	285	0·01
	2	Apogee	29·044	30·9	15·0	23·9	22·9	33·6	11·1	38·8	35·7	1·0	7·6	0·0	−13·1	SE : E	NNE:NNW:SW	23·0	0·0	1·3	261	0·62
	3	..	29·636	29·9	10·4	22·1	19·8	39·9	6·4	37·8	34·7	2·3	4·7	0·0	−14·6	SW	N : WSW	0·0	0·0	0·0	120	0·00
	4	Greatest Declination S.	29·824	21·2	7·7	13·2	11·1	51·1	6·0	36·1	34·7	2·1	5·9	0·0	−23·2	WSW	WSW	0·0	0·0	0·0	99	0·00
	5	..	29·798	32·5	6·6	23·3	19·0	42·5	5·2	35·4	30·9	4·3	8·3	0·0	−12·9	SE	ESE	7·0	0·0	0·6	376	0·00
	6	New	29·254	43·7	27·8	37·8	37·8	43·7	26·3	34·8	32·9	0·0	0·0	0·0	+ 1·8	SE : SSE	SE : SSW	17·5	0·0	1·0	368	0·29
	7	..	29·003	54·4	42·3	49·2	47·8	58·0	39·2	35·8	31·2	1·4	3·8	0·0	+13·4	SSW	SSW	23·0	0·3	3·1	755	0·18
	8	..	28·791	52·9	40·5	45·6	40·6	56·2	37·0	34·8	33·5	5·0	9·0	1·1	+ 9·9	SSW : SW	SW : SSW	35·0	0·1	4·1	490	0·13
	9	..	28·816	46·1	39·2	43·2	39·2	47·2	34·8	36·8	32·2	4·0	6·2	1·8	+ 7·4	SSW	SSW : SW	11·0	0·0	1·7	589	0·57
	10	..	29·120	43·4	37·2	39·3	33·0	47·5	34·5	37·3	33·2	6·3	7·6	4·4	+ 3·4	WSW : NW	NW	6·0	0·0	1·4	348	0·03
	11	In Equator.	29·531	38·0	28·2	32·4	26·3	55·2	24·1	37·8	34·2	6·1	10·6	3·6	− 3·6	NW : N	N	2·2	0·0	0·4	268	0·00
	12	..	29·448	32·8	22·5	27·5	21·6	51·8	20·8	38·8	36·2	5·9	8·6	0·7	− 8·6	NW : WSW	SW : NW	2·2	0·0	0·3	334	0·06
	13	First Qr.	29·549	31·0	18·0	24·0	16·3	42·0	17·0	34·3	32·5	7·7	10·8	6·2	−12·2	NW : W : NNW	NW : WSW	1·5	0·0	0·2	139	0·00
	14	..	29·726	24·9	13·9	19·3	11·9	47·7	11·8	33·0	31·5	7·4	10·9	0·9	−17·0	SW	NW : W	0·0	0·0	0·0	159	0·00
	15	..	29·753	32·0	18·0	25·9	22·1	63·0	15·8	31·8	..	3·8	7·0	1·7	−10·5	WNW : NNE	N : N by E	1·5	0·0	0·2	335	0·00
	16	..	29·579	34·9	27·7	30·6	22·4	42·1	23·0	32·3	30·9	8·2	13·3	4·6	− 5·9	NNE	N	23·0	0·0	2·0	498	0·01
	17	..	29·343	29·9	25·7	27·7	19·6	37·0	20·8	32·8	30·7	8·1	10·1	4·5	− 8·9	NNW	NNW	6·7	0·0	1·1	275	0·01
	18	Greatest Declination N. Perigee.	29·401	31·8	24·9	27·6	24·4	45·6	22·5	32·3	30·7	3·2	4·7	2·2	− 9·1	NW : W	N : NNE	0·5	0·0	0·0	97	0·08
	19	..	29·709	31·9	22·1	26·9	22·7	64·0	17·2	32·3	30·9	4·2	7·7	1·4	−10·0	Variable	ENE : ESE	1·0	0·0	0·0	279	0·00
	20	Full	29·728	30·5	25·9	28·5	22·6	39·4	23·2	31·8	30·2	5·9	8·7	1·9	− 8·5	ESE : E	E by N	17·5	0·1	1·8	439	0·00
	21	..	29·722	29·4	27·4	28·1	17·4	33·1	27·3	31·8	29·7	10·7	11·3	9·3	− 9·1	ENE	ENE : E	10·0	0·0	1·2	281	0·00
	22	..	29·853	33·0	22·0	24·1	18·1	33·0	22·0	32·3	29·7	6·0	8·7	0·6	−13·3	SE	SE : E	0·7	0·0	0·0	233	0·02
	23	..	29·540	49·7	33·0	44·1	42·8	49·7	33·0	30·5	30·5	1·3	4·6	0·0	+ 6·4	SSE : S	S	7·0	0·0	0·6	470	0·03
	24	In Equator.	29·327	54·5	43·1	49·5	48·3	64·8	42·5	33·8	31·1	1·2	5·2	0·0	+11·6	SSW : SW	SW : S	9·2	0·0	1·3	246	0·01
	25	..	29·457	50·4	39·4	43·9	39·6	58·9	33·7	33·8	31·7	4·3	8·8	1·1	+ 5·8	Calm : SW	NW : W	3·6	0·0	0·4	336	0·02
	26	..	29·895	46·0	38·6	42·0	38·1	50·1	33·1	35·8	32·7	3·9	6·4	1·0	+ 3·7	WSW : W : N	SSW	3·7	0·0	0·4	380	0·21
	27	Last Qr.	29·795	55·0	45·5	51·5	50·0	59·0	44·0	39·8	36·7	1·5	3·4	0·0	+13·1	SW	WSW : SW	4·1	0·0	1·1	396	0·00
	28	..	29·715	53·0	42·0	47·6	44·9	59·0	39·2	40·8	37·7	2·7	5·7	1·3	+ 9·2	SW	SW : WSW	12·0	0·1	1·6	459	0·01
	29	..	29·798	50·4	38·9	45·8	42·9	68·0	34·1	42·3	38·7	2·9	7·1	0·0	+ 7·5	SW	SW	8·6	0·0	1·5	599	0·00
	30	Apogee.	29·584	51·7	42·3	46·8	42·7	60·6	42·1	43·8	41·1	4·1	7·8	0·0	+ 8·7	SW	SW:SSW:NW:WSW	20·0	0·0	2·4	472	0·45
	31	..	30·002	46·9	36·3	41·3	34·3	71·7	32·0	44·3	41·7	7·0	10·7	4·8	+ 3·4	W : WSW	W : SW : S	11·2	0·0	0·7	338	0·00
																					Sum 10·24	Sum 2·79
Means		..	29·514	39·5	28·5	34·2	29·7	50·3	25·8	36·0	33·5	4·4	7·6	1·8	− 2·8	...	...	..	..	..		

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 29in·910 on the 5th; the first minimum in the month was 28in·912 on the 2nd.
The second maximum ,, was 28in·979 on the 8th; the absolute minimum ,, was 28in·579 on the 8th.
The third maximum ,, was 29in·601 on the 11th; the third minimum ,, was 28in·715 on the 9th.
The fourth maximum ,, was 29in·782 on the 15th; the fourth minimum ,, was 29in·389 on the 12th.
The fifth maximum ,, was 29in·759 on the 20th; the fifth minimum ,, was 29in·311 on the 17th.
The sixth maximum ,, was 29in·910 on the 22nd; the sixth minimum ,, was 29in·707 on the 21st.
The seventh maximum ,, was 29in·967 on the 26th; the seventh minimum ,, was 29in·302 on the 24th.
The eighth maximum ,, was 29in·864 on the 27th; the eighth minimum ,, was 29in·755 on the 27th.
The ninth maximum ,, was 29in·881 on the 29th; the ninth minimum ,, was 29in·664 on the 28th.
The absolute maximum ,, was 30in·061 on the 31st; the tenth minimum ,, was 29in·420 on the 30th.
The range in the month was 1in·482.
The mean for the month was 29in·514, being 0in·241 *lower* than the average of the preceding 26 years.

TEMPERATURE OF THE AIR.

The highest in the month was 55°·0 on the 27th; the lowest was 6°·6 on the 5th.
The range ,, was 48°·4.
The mean ,, of all the highest daily readings was 39°·5, being 3°·8 *lower* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 28°·5, being 5°·1 *lower* than the average of the preceding 26 years.
The mean daily range was 11°·0, being 1°·3 *greater* than the average of the preceding 26 years.
The mean for the month was 34°·2, being 4°·1 *lower* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY. A.M.	ELECTRICITY. P.M.	CLOUDS AND WEATHER. A.M.	CLOUDS AND WEATHER. P.M.
Jan. 1	w	m	sl.-sn	4, ci.-s, cu.-s, sc, h : o, sl.-f
2	w : s, g.-cur	ss N,P, sp,g.-cur: m	10, sl.-sn : 7, ci, ci.-cu, sc, sl.-sn	6, li.-cl, sn : v
3	o	o	10, h.-fr, sl.-f : 10, sn	10, sl.-f : 10, f
4	w	w : m	o, h.-fr, sl.-f	o, f
5	o	o : w	10, f	7, h, ci.-s : o, f, h.-fr
6	o	w : o	10, sl.-r, sl, w : 10, m.-r	10, r : 10, sn
7			10, r : 10, sc	: v, f, r
8			10, ci.-cu, ci.-s, sc, f.-sqs	6, ci, ci.-cu, ci.-s : ci, ci.-s, oc.-r, v
9			7, ci, ci.-s, cu.-s, s, r	10, sqs, r : ci, ci.-cu, ci.-s, v, r : o
10				10, cu.-s, sc, r : cu.-s, h.-r, vv
11			10, r : 10, ci.-cu	
12			10, ci.-cu, ci	10, ci.-s, cu.-s : 10
13			5, ci, ci.-cu, cu.-s, sn : 10, oc.-sn	10, ci, ci.-cu, ci.-s, li.-cl, v : o
14				10, sn : sn, v
15			o, h.-fr	
16			o, h, sl.-f, h.-fr : o, gt.-glm, h	o : o, h.-fr
17			8, li.-cl : o	1, h, sl.-f, li.-cl : o, h, h.-fr
18				o : sc, sn, v
19			9, ci.-cu, cu.-s, h, sn : 10	
20			10, h.-fr, sn : 10	10, sn : 10, sn : 10, sc, sn, st.-w
21			10, sn : 10	10 : v : ci, ci.-s, v
22				10, vv : 4, v
23			ci, ci.-cu, h.-fr, h, v	
24			10, ci.-s, cu.-s	8, ci.-cu, sn, h : cu.-s, ci.-cu, v
25			10, ci.-s, cu.-s : 10, sn	10 : ci, ci.-cu, cu.-s, sc, v, st.-w
26				10 : 10
27	o	o	10, : 10	
28			10, r : 10	10 : 10, r, fr.-r
29			10, th.-r, sc : 9, ci.-s, ci.-cu, sc	10, r : v, st.-w
30				10 : 10, r
31			10, f, m.-r : 10, cu.-s	
			10, sl.-f : v	9, cu.-s : d, v
			10 : 10	10 : 10, r
				10, r
			10, sc : 10, sc, th.-r	
			8, ci, ci.-cu : 10, ci, ci.-s	10, th.-r : v
			8, ci, ci.-cu, ci.-s, cu.-s, sc : 10, ci, ci.-s, sc	10, fr.-sqs : 10, r, sqs
				10, r, sc : 10, sc, h.-r, sqs
			o, h.-fr, d : 2, ci, ci.-cu, ci.-s, h	3, ci, ci.-cu, ci.-s, h : 10

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 50°·7 on the 27th; and the lowest, as read by eye January 4.^{d} 21^{h}., was 7°·2. The dew-point-temperature had, however, been lower, the lowest air-temperature recorded by the self-registering thermometer being 6°·6.

The mean ,, was 29°·7, being 5°·4 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·165, being 0^{in}·038 *less* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 2^{grs}·0, being 0^{grs}·4 *less* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 83 (that of Saturation being represented by 100), being 5 *less* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 554 grains, being *the same as* the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·3.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 0·8.

WIND.

The proportions were of N. 7, S. 9, W. 10, E. 4, and Calm 1. The greatest pressure in the month was 35^{lbs}·0 on the square foot, on the 8th.

RAIN.

Fell on 18 days in the month, amounting to 2^{in}·79, as measured in the simple cylinder gauge partly sunk below the ground; being 1^{in}·00 *greater* than the average fall of the preceding 52 years.

ELECTRICITY.—The electrical apparatus was not in action from January 7 to 26, and January 28 to 31.

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MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 60 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Osler's. Pressure in lbs. on the square foot. Greatest.	Osler's. Pressure in lbs. on the square foot. Least.	Osler's. Amount of Horizontal Movement of the Air on each Day. Mean of 24 Obs.	Robinson's. Amount of Horizontal Movement of the Air on each Day.	Rain in Inches, collected in a Gauge whose receiving surface is 1 Square Foot.
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
Feb. 1	Greatest Declinations.	29·959	50·4	40·0	46·1	45·1	53·2	37·0	44·8	42·7	1·0	3·3	0·0	+ 8·3	S by E : S	SW	2·9	0·0	0·6	393	0·09
2	..	30·215	51·7	35·0	43·1	36·3	82·2	31·7	44·5	42·7	6·8	13·7	3·5	+ 5·4	WSW	W by S	4·7	0·0	0·7	340	0·00
3	..	30·274	47·5	32·9	39·7	34·8	69·0	32·5	43·8	42·9	4·9	10·9	1·2	+ 1·9	SW	SW : SSW	1·0	0·0	0·1	336	0·00
4	New	29·425	48·7	38·9	43·3	40·5	53·5	35·3	43·3	41·5	2·8	4·6	2·0	+ 5·3	SSW	SSW : SW	10·0	0·0	1·2	483	0·08
5	..	29·143	47·2	35·2	42·2	39·9	61·5	30·7	42·8	39·2	2·3	4·6	0·0	+ 3·9	SW : SSW	SSW : SW	11·5	0·1	1·6	664	0·07
6	..	28·774	50·5	37·1	43·1	36·4	88·0	33·7	42·7	39·0	6·7	12·4	0·0	+ 4·5	SW : WSW	WSW	33·0	0·7	5·2	642	0·08
7	..	29·485	43·7	35·1	39·7	30·5	76·2	30·9	42·8	39·2	9·2	13·4	5·2	+ 0·9	W	WSW : SSW	15·5	0·1	1·5	646	0·18
8	In Equator.	29·251	54·4	40·0	48·5	45·3	64·6	37·5	42·8	38·7	3·2	7·6	0·0	+ 9·6	SW	SW : WSW	41·0	0·3	4·3	697	0·01
9	..	29·811	54·8	42·8	47·1	40·0	95·9	40·0	42·6	38·4	7·1	13·2	1·1	+ 8·2	WSW	WSW : SW : S	15·5	0·0	1·3	310	0·06
10	..	29·786	52·3	44·0	48·6	43·9	57·8	43·9	43·5	40·7	4·7	6·2	1·3	+ 9·8	SSW	SSW	13·0	0·0	1·2	509	0·00
11	..	29·977	50·1	37·9	42·3	34·1	80·2	34·1	43·8	41·7	8·2	11·0	4·8	+ 3·7	W : W by S	WSW	13·0	0·0	1·1	479	0·14
12	First Qr.	30·104	52·0	41·8	47·7	45·1	60·6	29·1	44·8	42·7	2·6	5·6	0·8	+ 9·3	SW	WSW	2·1	0·0	0·4	247	0·00
13	..	30·213	48·3	44·8	46·1	43·4	53·0	44·7	45·3	43·4	2·7	3·4	0·4	+ 7·8	WSW : SW	SW : N : NE	0·0	0·0	0·0	134	0·00
14	Greatest Declination N.	30·152	50·1	39·3	43·6	41·1	74·6	35·0	45·5	43·7	2·5	5·9	0·9	+ 5·4	NE : ENE	E : ESE	1·1	0·0	0·0	200	0·00
15	Perigee	29·748	56·9	38·4	47·5	40·4	97·8	34·7	45·8	43·7	7·1	15·0	1·0	+ 9·4	E	SE : SSE	3·2	0·0	0·3	329	0·02
16	..	29·652	57·1	47·1	51·4	46·5	101·0	44·4	45·9	43·7	4·9	7·4	1·5	+13·3	S	SSW : SW	1·8	0·0	0·3	147	0·12
17	..	29·875	55·1	43·0	48·0	45·8	79·0	40·6	46·8	44·7	2·2	4·2	0·0	+ 9·8	Calm : SW	N : Calm	0·0	0·0	0·0	99	0·22
18	Full	30·291	46·0	39·9	41·9	41·6	50·7	39·3	47·8	45·7	0·3	0·7	0·0	+ 3·6	N : ENE	E	0·1	0·0	0·0	146	0·00
19	..	30·194	53·0	40·4	46·5	44·9	82·5	40·0	47·8	44·7	1·6	4·8	0·0	+ 8·0	NE : SE	S	0·0	0·0	0·0	143	
20	..	30·336	56·9	44·6	48·6	43·9	93·0	39·2	48·3	45·2	4·7	9·3	1·3	+ 9·9	SW : WSW	WSW : SW	0·2	0·0	0·0	254	0·00
21	In Equator.	30·366	52·0	42·2	47·5	43·2	63·8	38·5	48·8	45·7	4·3	6·6	1·8	+ 8·7	SW	SW : WSW	3·5	0·0	0·2	348	0·00
22	..	30·272	50·3	45·4	47·4	43·3	56·8	43·1	48·1	45·7	4·1	5·0	2·7	+ 8·4	SW	WSW	3·7	0·0	0·4	382	0·00
23	..	30·322	52·9	39·0	45·3	37·6	81·2	33·4	47·3	45·6	7·7	13·8	1·6	+ 6·1	WSW	NW : W : SW	0·7	0·0	0·0	292	0·00
24	..	30·074	52·3	38·0	46·1	43·7	60·4	32·4	47·8	45·7	2·4	9·0	0·0	+ 6·7	SW	WSW : W	8·5	0·0	0·8	438	0·00
25	..	30·000	50·1	37·0	44·3	38·7	93·0	36·0	46·8	44·7	5·6	10·5	2·4	+ 4·7	W : WSW	WSW	10·4	0·0	0·4	449	0·00
26	Last Qr.	29·862	48·7	37·8	39·9	35·7	51·5	36·3	46·8	44·7	4·2	5·9	1·4	+ 0·1	WSW : N	NW : SW	23·0	0·0	0·5	142	0·04
27	Apogee	29·932	41·6	35·4	37·4	28·0	59·1	34·5	46·3	44·6	9·4	11·7	7·0	— 2·5	Calm : E by N	E	0·6	0·0	0·0	191	0·00
28	Greatest Declination S.	30·008	43·7	33·1	37·4	30·8	84·1	29·1	45·3	43·8	6·6	13·2	4·1	— 2·7	ENE	E : NE	1·2	0·0	0·0	200	0·00
Means	..	29·911	50·7	39·5	44·7	40·0	72·3	36·3	45·5	43·0	4·6	8·3	1·6	+ 6·0	...	...	..	..	..	964	1·28

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 30in·360 on the 3rd; the second maximum was 29in·575 on the 7th; the third maximum was 29in·905 on the 9th; the fourth maximum was 30in·230 on the 13th; the fifth maximum was 30in·338 on the 18th; the absolute maximum was 30in·390 on the 21st; the seventh maximum was 30in·337 on the 23rd; the eighth maximum was 30in·078 on the 25th; the ninth maximum was 29in·856 on the 26th.

The first minimum in the month was 29in·951 on the 1st; the absolute minimum was 28in·701 on the 6th; the third minimum was 29in·208 on the 8th; the fourth minimum was 29in·683 on the 10th; the fifth minimum was 29in·619 on the 15th; the sixth minimum was 30in·176 on the 19th; the seventh minimum was 30in·241 on the 22nd; the eighth minimum was 29in·996 on the 24th; the ninth minimum was 29in·856 on the 26th.

The range in the month was 1in·689.

The mean for the month was 29in·911, being 0in·123 *higher* than the average of the preceding 26 years.

TEMPERATURE OF THE AIR.

The highest in the month was 57°·1 on the 16th; the lowest was 32°·9 on the 3rd.

The range was 24°·2.

The mean of all the highest daily readings was 50°·7, being 5°·8 *higher* than the average of the preceding 26 years.

The mean of all the lowest daily readings was 39°·5, being 6°·0 *higher* than the average of the preceding 26 years.

The mean daily range was 11°·2, being 0°·2 *less* than the average of the preceding 26 years.

The mean for the month was 44°·7, being 6°·0 *higher* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY. A.M.	ELECTRICITY. P.M.	CLOUDS AND WEATHER. A.M.	CLOUDS AND WEATHER. P.M.
Feb. 1			10, ci.-s, r : 10	10 : 10, oc.-r
2			0 : 3, ci, ci.-cu	7, ci, ci.-cu : 0
3			0, h, h.-fr : 5, ci, ci.-s	9, th.-cl, cu.-s
4			10, sc, th.-r : 10, sc, th.-r	10, sc, oc.-r : v, oc.-r : 0, ms
5			7, ci, ci.-cu, ci.-s, d : 10, sc	10, sc, r : 10, oc.-r
6			vv, sc, r, h.-sqs : 6, ci, ci.-cu, ci.-s, fr.-sqs	5, ci, ci.-cu., ci.-s, h.-sqs, r: v, r, l : 0
7			1, ci, h.-fr, d : 7, cu, cu.-s, w	1, ci.-cu, ci : v, r : 10, r, l
8			10, sc, fr.-sqs, r : 8, ci, ci.-cu, ci.-s	10, sqs, glm : ci.-cu, ci.-s, v, sqs, w, l: 0
9		0	0 : ci, cu, cu.-s	8, ci, ci.-cu, ci.-s, cu.-s : 10, r
10	0	0 : w	10, ci.-s	10, ci.-s : ci, ci.-s, lu.-ha, vv, r
11	0	0	1, ci, r : ci, ci.-cu, ci.-s	7, ci, ci.-cu, ci.-s : ci, ci.-s, v
12	0	0	10, th.-cl : 10, ci.-s	10 : 10, sl.-f, sl.-r
13	w	w	10, m.-r : 10	10 : 10
14	0 : w	m : w	10, th.-cl : 10, m.-r	h, v : 0, h.-d
15	w	0	1, ci : 3, ci	9, ci, ci.-s, cu.-s, th.-cl : 10, r, th.-cl, lu.-ha
16	0	0 : w	9, ci.-s, ci, ci.-cu, sl.-r : 6, ci.-cu, ci, ci.-s, cu.-s	6, ci, ci.-s : 10, th.-cl, h.-r
17	w	w	7, ci, ci.-cu, f, r : 9, ci, ci.-cu, f	10, glm
18	w	w	10, sl.-f : 10, f	10, f : 10, f
19	0	0 : w	10, m.-r : ci, ci.-cu, cu.-s, v	10 : 10
20	w 0	0 : m	10, d : 1, ci.-cu, h	4, ci, ci.-cu, ci.-s, h : 0, ci.-s, li.-cl, lu.-co
21	m w	0	10 : 10	10 : 10
22	3	0	10, th.-r : 10, cu.-s	10, th.-cl : 10
23	m 0	w : 0	3, ci, ci.-cu, h, d : 4, ci, h	4, ci, ci.-cu, h : 0, h, sl.-f, h.-d
24	0	0	10, sc, glm, oc.-r : 10, sc	v
25	0	0	10, ci.-s, ci.-cu : 9, ci, ci.-cu	10, th.-cl : 10
26			10, th.-r : 10, th.-r	10, r : 10
27	0	0	10, ci.-cu, ci.-s : 10, ci.-s, ci.-cu	10, ci.-s : 10
28	w : 0	0	10, sn : 10	7, ci.-cu, ci, cu.-s, li.-cl, l, v: 0

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 49°·0 on the 17th; and the lowest was 27°·4 on the 27th.

The mean ,, was 40°·0, being 5°·4 *higher* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·247, being 0^{in}·044 *greater* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 2^{grs}·8, being 0^{grs}·4 *greater* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 84 (that of Saturation being represented by 100), being 1 *less* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 549 grains, being 4 grains *less* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·7.

WIND.

The proportions were of N. 2, S. 9, W. 12, E. 4, and Calm 1. The greatest pressure in the month was 41^{lbs}·0 on the square foot on the 8th.

RAIN.

Fell on 13 days in the month, amounting to 1^{in}·22, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·35 *less* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning from February 1 to 8, and on February 26.

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Results of Daily Meteorological Observations

MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer, with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Pressure in lbs. on the square foot. Greatest.	Pressure in lbs. on the square foot. Least.	Pressure in lbs. on the square foot. Mean of 24 Obs.	Robinson's. Amount of Horizontal Movement of the Air in miles.	Rain collected in a Gauge on each side, collected in a Gauge Raised in receiving surface in 6 inches above the Ground.
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
Mar. 1	..	30·412	40·9	28·2	34·7	28·5	58·4	21·4	44·0	43·2	6·2	10·8	4·0	— 5·5	NE : N	NE	0·8	0·0	0·0	231	0·00
2	..	30·582	39·8	29·8	33·5	24·9	85·4	27·8	43·3	41·7	8·6	11·5	7·4	— 6·7	NE : ENE	ENE : NE	2·7	0·0	0·2	361	0·00
3	..	30·471	43·5	27·6	35·4	30·1	90·1	25·0	41·8	40·7	5·3	13·4	3·2	— 4·8	NE	ENE	20·6	0·0	1·0	419	0·00
4	..	30·257	45·6	33·9	38·2	32·4	95·8	31·1	40·8	37·7	5·8	9·9	2·2	— 1·9	ENE	NE : NNE	8·2	0·0	0·6	377	0·00
5	..	29·930	48·7	33·3	38·9	32·6	78·2	29·6	39·8	36·7	6·3	12·0	3·8	— 1·2	NNE	NNE : N by W	3·0	0·0	0·4	297	0·00
6	New	29·591	40·9	31·2	33·7	29·9	63·9	20·4	39·8	36·7	3·8	9·2	1·1	— 6·4	N : N by E	NE : NNE	3·8	0·0	0·3	341	0·04
7	In Equator.	29·468	39·2	29·5	33·2	29·8	81·0	26·5	40·5	37·3	3·4	7·4	0·0	— 7·0	NE	NE	5·0	0·0	0·1	216	0·11
8	..	29·388	38·7	29·2	32·9	29·6	88·0	26·6	40·8	37·7	3·3	6·3	1·7	— 7·4	NE	E : ENE	0·5	0·0	0·0	225	0·04
9	..	29·316	40·8	29·4	34·8	31·7	70·9	25·0	40·9	38·9	3·1	8·3	0·2	— 5·6	NE		12·0	0·0	0·8	388	0·34
10	..	29·123	44·8	36·1	40·4	40·2	47·0	35·2	41·1	39·0	0·2	2·2	0·0	— 0·2	ENE	N : NNE	14·9	0·0	1·1	240	0·18
11	..	29·507	40·5	34·6	36·2	32·4	57·6	34·0	40·3	38·6	3·8	6·0	1·5	— 4·7	NNE : NE	NE : E	0·1	0·0	0·0	253	0·03
12	Perigee.	29·650	38·3	31·6	33·4	27·6	56·2	31·0	39·8	38·2	5·8	10·2	0·0	— 7·8	NE	ENE	40·0	0·0	4·2	553	0·17
13	First Qr.	29·699	33·8	29·0	30·3	22·2	51·0	28·2	39·5	37·7	8·1	10·8	1·0	—11·1	ENE	ENE	31·0	0·2	2·1	425	0·04
14	Greatest Declination N.	29·404	33·7	30·9	31·8	30·5	39·0	29·6	39·3	37·4	1·3	3·3	0·0	— 9·7	ENE	NE	4·6	0·0	0·6	229	0·49
15	..	29·617	40·7	29·5	34·1	28·9	82·0	25·5	38·8	36·2	5·2	9·5	4·0	— 7·6	NE	NNE : N	0·6	0·0	0·0	151	0·01
16	..	29·794	42·0	24·5	32·2	27·0	88·1	18·5	37·8	34·7	5·2	12·5	1·3	— 9·7	NNW	NNE : ENE	4·2	0·0	0·1	260	0·01
17	..	29·726	38·1	26·1	32·1	22·2	93·3	21·9	37·5	34·4	9·9	12·8	4·8	— 9·9	ENE	E	25·0	0·0	1·9	578	0·00
18	..	29·345	33·6	26·3	29·7	27·7	44·0	25·1	37·3	34·2	2·0	4·0	1·3	—12·4	E	E	28·0	0·0	2·7	303	0·08
19	..	29·175	36·3	31·8	33·8	32·5	36·3	31·1	36·9	34·2	1·3	3·1	0·0	— 8·4	NE	ENE : NE	3·9	0·0	0·4	270	0·22
20	Full: In Equator.	29·394	39·2	32·6	34·6	30·9	53·2	31·8	36·8	33·7	3·7	6·0	1·9	— 7·6	N by E	N : N by W	1·6	0·0	0·2	244	0·00
21	..	29·693	40·9	28·7	34·1	26·4	89·6	25·0	36·1	33·7	7·7	12·4	2·4	— 8·2	N : NE	ESE	8·5	0·0	0·4	325	0·00
22	..	29·546	46·5	30·5	36·9	36·1	64·0	29·6	36·8	34·7	0·8	4·6	0·0	— 5·3	ESE	Calm	3·8	0·0	0·3	135	0·18
23	..	29·489	55·1	39·3	47·6	45·2	75·8	37·0	37·8	34·7	2·4	9·0	1·4	+ 5·4	SSW : SSE	SSE	3·3	0·0	0·6	334	0·03
24	..	29·443	59·1	48·1	51·4	44·4	110·2	44·2	40·3	35·4	7·0	9·7	4·0	+ 9·2	SW	SSW	2·9	0·0	0·4	393	0·04
25	..	29·501	54·9	45·3	48·8	44·2	79·6	40·6	..	..	4·6	8·6	2·5	+ 6·5	SW : SSW	SSE : SSW	3·8	0·0	0·7	515	0·13
26	..	29·246	58·0	44·0	49·9	39·9	107·3	40·2	40·8	39·7	10·0	16·2	4·0	+ 7·4	SSW	SW	22·5	0·0	2·9	457	0·00
27	Apogee: Greatest Dec. S.	29·187	57·1	41·2	46·8	42·0	108·1	37·0	44·8	43·7	4·8	9·3	1·1	+ 3·9	SW : SSW	SSW : SW	2·1	0·0	0·2	277	0·02
28	Last Qr.	29·279	53·8	34·4	42·9	34·9	111·2	29·5	47·1	44·7	8·0	15·6	0·0	— 0·3	WSW	WSW : SW	1·7	0·0	0·1	299	0·01
29	..	29·476	50·1	35·8	43·0	35·3	74·2	30·0	47·8	45·7	7·7	13·0	4·0	— 0·6	SW	W : WSW	1·5	0·0	0·2	330	0·00
30	..	29·595	55·1	35·7	43·1	36·3	109·6	32·0	47·0	45·2	6·8	13·4	2·2	— 0·9	WSW	WSW : NW	25·2	0·0	1·3	548	0·09
31	..	30·046	49·7	34·4	41·5	29·8	107·0	30·6	47·8	44·7	11·7	17·4	4·6	— 2·9	NW : NNW	NNW : NW	6·6	0·0	0·8	235	0·00
																				Sum 10311	Sum 1·28
Means	..	29·624	44·5	33·0	37·7	32·5	77·3	29·7	40·8	38·4	5·3	9·6	2·1	— 3·9	...	...	..	..	..		

Barometer Readings from Eye-Observations.

The absolute maximum in the month was 30in·608 on the 2nd; the absolute minimum in the month was 29in·016 on the 10th.
The second maximum ,, was 29in·799 on the 13th; the second minimum ,, was 29in·382 on the 14th.
The third maximum ,, was 29in·874 on the 16th; the third minimum ,, was 29in·148 on the 19th.
The fourth maximum ,, was 29in·711 on the 21st; the fourth minimum ,, was 29in·520 on the 22nd.
The fifth maximum ,, was 29in·628 on the 23rd; the fifth minimum ,, was 29in·324 on the 23rd.
The sixth maximum ,, was 29in·602 on the 25th; the sixth minimum ,, was 29in·172 on the 27th.
The seventh maximum ,, was 29in·639 on the 30th; the seventh minimum ,, was 29in·546 on the 30th.
The range in the month was 1in·592.
The mean for the month was 29in·624, being 0in·123 *less* than the average of the preceding 26 years.

Temperature of the Air

The highest in the month was 59°·1 on the 24th; the lowest was 24°·5 on the 16th.
The range ,, was 34°·6.
The mean ,, of all the highest daily readings was 44°·5, being 5°·4 *lower* than the average of the preceding 26 years.
The mean .. of all the lowest daily readings was 33°·0, being 2°·2 *lower* than the average of the preceding 26 years.
The mean daily range was 11°·5, being 3°·1 *less* than the average of the preceding 26 years.
The mean for the month was 37°·7, being 4°·0 *lower* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
March 1	0	0	8, ci.-s, cu.-s, ci.-cu : 10, ci.-s, cu.-s, sn	10, ci.-s, cu.-s, ci.-cu : ci.-cu, v
2	0	0	10 : 10	ci, ci.-cu, v : ci.-s, v
3	0	0	2, ci, ci.-s, h.-fr : 1, ci	ci, ci.-s, v
4	0	0	10 : 9, cu.-s, ci.-cu	4, ci.-cu : ci.-s, vv
5	0	0	10, oc.-r : 10	3, ci : 0, d
6	0	ssN,sp,g.-cur : 0	10, ci.-s, cu.-s : 10, sl	sn, h, v : v, th.-cl, oc.-sn : 10
7	0 : ss N, ss P, sp, g.-cur	ssN,ssP,sp,g.-cur: 0	10, sn : ci, ci.-s, v, sn	ci, ci.-cu, ci.-s, cu.-s, v, sn: 10, oc.-sn
8			v, ci, ci.-cu, sn	10, hl : 10
9			10, ci.-cu, ci.-s, h	10, ci.-s, glm : 10, r, st.-w
10			10, h.-r, st.-w : 10, m.-r, f	10, th.-r
11			10, ci.-s, cu.-s, r : 10	10, oc.-r : 10, m.-r
12			10, ci.-s, sn : 10, sc, sn	10, sc, oc.-sn : 10, st.-w
13			10, h, st.-w : 10	10 : 10, sn
14			10, sn : 10, fr.-r, r, sl	10, sn : 6, cu.-s, ci.-cu, sc
15			10, ci.-s, cu.-s, sn : 10, ci, ci.-cu, sn	10 : ci, ci.-cu, v : 0
16			3, ci, ci.-s, h	7, ci.-cu, cu, cu.-s: ci.-cu, ci.-s, v, hl, sn : 0
17			cu, ci.-cu, v : vv, st.-w	10, st.-w
18			10, sn, st.-w	10, sn : 10
19			10 : 10, fr.-r, sn, r	10, r : 10, th.-r, fr.-r : 10, oc.-r
20			10 : 10	10, m.-r
21			9, ci, ci.-cu, cu, ci.-s	10, ci.-cu : 3, ci, ci.-s
22			10, sn : 10, th.-r	0, h, mt : 10, th.-r, f
23			10, th.-cl	10, r, ci.-s : 10, ci.-s, r
24			6, ci, ci.-cu, r	7, ci, ci.-cu, ci.-s : ci, v
25			10, cu.-s, ci.-s	10, r : ci.-cu, ci.-s, r, v : 0
26			ci, ci.-cu, cu.-s, ci.-s, sc, vv, st.-w	ci, ci.-cu, cu, v : ci, ci.-cu, v : 0
27			6, li.-cl : ci.-s, cu.-s, r, v : ci, ci.-s, r, v	v, r, ci.-s, cu.-s : 4, ci.-s, cu.-s : v
28			0 : ci, ci.-cu, ci.-s, v	8, r, hl, ci, ci.-cu, ci.-s : 0
29			9, li.-cl, h : 10, ci.-cu, cu.-s, mt	10 : 2, cu.-s, ci.-cu: 0
30			3, ci, ci.-cu, ci.-s, cu.-s, h: ci, ci.-cu, v, r	ci, ci.-cu, cu.-s, v, r: sqs, w, r, v, l, t : 0
31			6, ci, ci.-cu, st.-w : 8, ci, ci.-cu, cu, cu.-s, w	4, h

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 47°·4 on the 25th; and the lowest was 20°·5 on the 13th.

The mean „ was 32°·5, being 3°·9 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·184, being 0^{in}·033 *less* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 2^{grs}·1, being 0^{grs}·4 *less* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 82 (that of Saturation being represented by 100), being *the same as* the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 552 grains, being 2 grains *greater* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·9.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 1·1.

WIND.

The proportions were of N. 11, S. 4, W. 4, E. 12, and Calm 0. The greatest pressure in the month was 40^{lbs}·0 on the square foot on the 12th.

RAIN.

Fell on 20 days in the month, amounting to 2^{in}·28, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·69 *greater* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning from March 8 to 31.

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MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Pressure in lbs. on the square foot. Greatest.	Pressure in lbs. on the square foot. Least.	Pressure in lbs. on the square foot. Mean of 24 Obs.	Robinson's. Amount of Horizontal Movement of the Air on each Day.	Rain in Inches, collected in a Gauge [illegible]
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
April 1	..	30·257	58·3	30·5	44·9	38·4	117·0	25·1	46·8	43·7	6·5	16·3	0·4	+ 0·3	WSW	W : WSW	2·0	0·0	0·3	366	0·00
2	..	29·992	59·9	47·8	52·8	48·8	81·0	46·1	47·3	42·7	4·0	7·8	2·4	+ 8·0	SW : WSW	W:WNW: NW	6·0	0·0	0·4	373	0·01
3	In Equator	30·048	62·1	41·9	50·4	42·3	104·0	34·1	47·8	43·7	8·1	18·2	4·6	+ 5·4	NW	NNW : WSW	2·5	0·0	0·2	392	0·00
4	New	29·690	60·8	46·5	50·5	43·4	115·0	45·0	47·8	44·7	7·1	14·4	3·2	+ 5·3	SW	W : WNW	11·0	0·0	1·2	379	0·01
5	..	29·879	61·6	41·8	49·5	42·2	117·3	41·0	49·3	45·7	7·3	16·2	3·7	+ 4·1	NW : Calm : SW	WSW	3·8	0·0	0·7	428	0·00
6	..	29·865	61·3	44·1	50·9	46·8	76·0	39·7	49·8	46·9	4·1	10·8	1·5	+ 5·5	WSW	WSW	2·2	0·0	0·3	348	0·01
7	..	29·724	58·9	46·8	50·0	44·6	82·1	42·0	49·8	46·7	5·4	10·3	3·4	+ 4·6	WSW	SW	7·6	0·0	0·7	501	0·00
8	..	29·264	54·9	42·2	47·1	43·0	64·9	38·2	50·8	47·7	4·1	7·1	1·7	+ 1·7	WSW	W by S : WNW	25·0	0·2	4·0	790	0·15
9	..	29·569	57·1	42·3	47·7	35·4	101·9	36·0	50·8	47·7	12·3	17·6	6·2	+ 2·4	WNW	WNW : W	26·0	0·4	3·2	511	0·02
10	Greatest Declination N.	29·630	57·4	37·1	46·4	40·3	102·2	30·5	50·3	47·7	6·1	16·0	2·6	+ 1·2	W WSW	SW	8·0	0·0	1·3	690	0·07
11	..	29·566	54·2	38·9	44·6	36·2	105·9	34·0	48·8	46·7	8·4	15·8	2·1	— 0·5	W : NW	NNW : N by E : W	25·0	0·0	3·5	359	0·04
12	Perigee	30·025	58·4	34·5	45·1	36·8	118·2	29·0	47·8	46·2	8·3	18·4	0·3	+ 0·1	W : NNE	WSW : SSW	1·5	0·0	0·1	340	0·00
13	First Qr.	29·784	53·4	40·3	45·9	44·7	73·8	35·5	48·4	46·8	1·2	4·8	0·0	+ 1·0	SW	SW	3·6	0·0	1·0	552	0·15
14	..	29·283	54·2	45·3	47·7	42·6	69·0	44·5	48·8	46·7	5·1	11·1	1·3	+ 2·7	SW	SW : WSW	25·0	1·3	5·9	788	0·56
15	..	29·419	58·0	43·0	48·8	39·2	122·0	38·3	48·9	46·8	9·6	14·6	4·2	+ 3·5	WSW : W	W : WSW	23·0	0·0	2·0	466	0·03
16	In Equator	29·526	55·4	43·1	47·5	46·2	68·0	38·3	49·0	46·9	1·3	4·8	0·0	+ 2·0	SW	WSW	3·2	0·0	0·4	382	0·03
17	..	29·719	60·8	47·0	51·2	47·1	83·6	47·0	49·3	47·2	4·1	11·2	1·1	+ 5·5	W by S : N	NW : N	2·5	0·0	0·2	162	0·04
18	Full	29·678	64·7	46·2	54·8	49·5	111·0	40·3	49·8	47·9	5·3	11·6	1·7	+ 8·8	SW : SSW	S : SE	0·8	0·0	0·1	252	0·00
19	..	29·423	64·8	51·4	56·9	47·5	127·3	49·2	51·3	48·4	9·4	15·6	3·8	+ 10·5	S : SW	SW	10·0	0·0	0·8	466	0·00
20	..	29·052	59·4	42·5	49·6	47·7	85·1	42·0	51·8	49·7	1·9	7·6	0·0	+ 2·9	SSW	SSW	25·0	0·0	1·1	600	0·21
21	..	29·276	52·0	39·0	42·8	35·6	122·1	37·4	53·8	50·7	7·2	14·9	1·5	— 4·2	WSW	WSW	20·0	0·2	2·9	512	0·32
22	..	29·641	59·9	41·0	49·2	42·3	121·4	36·0	53·9	50·8	6·9	15·4	0·6	+ 2·0	WSW : W	SW : SSW	2·9	0·0	0·3	342	0·04
23	Apogee	29·615	64·8	49·9	55·7	48·5	105·0	47·6	54·3	52·2	7·2	14·4	1·5	+ 8·3	SW	SW : SSW	2·4	0·0	0·4	376	0·04
24	Greatest Dec. S.	29·494	62·8	47·8	53·7	47·1	123·0	45·8	53·8	51·2	6·6	10·8	2·3	+ 6·1	S by W : SW	SW	6·0	0·0	0·7	348	0·30
25	..	29·653	50·7	42·9	45·6	42·9	76·0	42·0	52·8	49·7	2·7	5·3	0·4	— 2·1	WSW : N	NE : E by N	0·8	0·0	0·1	232	0·01
26	..	29·616	50·9	40·4	45·2	41·7	71·7	40·0	52·2	48·7	3·5	6·5	1·8	— 2·7	E : ESE	ESE	1·0	0·0	0·1	229	0·00
27	Last Qr.	29·365	59·8	40·0	48·5	43·2	103·7	34·0	51·8	48·3	5·3	12·7	0·0	+ 0·4	SE : S	SSW	2·0	0·0	0·3	247	0·02
28	..	29·540	60·6	35·3	48·6	39·5	101·0	27·2	51·8	47·7	9·1	16·9	0·0	+ 0·2	Calm : NE	ENE : NNE	1·1	0·0	0·1	231	0·00
29	..	29·717	59·6	40·5	49·1	40·6	115·3	34·4	51·8	47·7	8·5	18·8	3·4	+ 0·3	N	NNE: SE:SSW	0·6	0·0	0·0	184	0·00
30	..	29·565	64·2	39·7	49·2	44·8	123·5	35·1	51·5	48·7	4·4	19·2	1·2	— 0·1	S by E	SW	16·0	0·0	0·2	342	0·19
Means	..	29·629	58·7	42·3	49·0	43·0	99·6	38·5	50·4	47·5	6·0	12·8	1·9	+ 2·8	...	...	..	..	..	1219	2·16

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The absolute maximum in the month was 30in·304 on the 1st; the first minimum in the month was 29in·976 on the 2nd.
The second maximum ,, was 30in·091 on the 3rd; the second minimum ,, was 29in·653 on the 4th.
The third maximum ,, was 29in·922 on the 5th; the third minimum ,, was 29in·203 on the 8th.
The fourth maximum ,, was 29in·783 on the 10th; the fourth minimum ,, was 29in·360 on the 11th.
The fifth maximum ,, was 30in·049 on the 12th; the fifth minimum ,, was 29in·164 on the 14th.
The sixth maximum ,, was 29in·588 on the 16th; the sixth minimum ,, was 29in·487 on the 16th.
The seventh maximum ,, was 29in·794 on the 17th; the absolute minimum ,, was 28in·895 on the 20th.
The eighth maximum ,, was 29in·663 on the 22nd; the eighth minimum ,, was 29in·463 on the 24th.
The ninth maximum ,, was 29in·716 on the 25th; the ninth minimum ,, was 29in·346 on the 27th.
The tenth maximum ,, was 29in·734 on the 29th; the tenth minimum ,, was 29in·543 on the 30th.
The range in the month was 1in·409.
The mean for the month was 29in·629, being 0in·139 *less* than the average of the preceding 26 years.

TEMPERATURE OF THE AIR.

The highest in the month was 64°·8 on the 19th and 23rd; the lowest was 30°·5 on the 1st.
The range ,, was 34°·3.
The mean ,, of all the highest daily readings was 58°·7, being 1°·3 *higher* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 42°·3, being 3°·3 *higher* than the average of the preceding 26 years.
The mean daily range was 16°·4, being 2°·1 *less* than the average of the preceding 26 years.
The mean for the month was 49°·0, being 2°·2 *higher* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
April 1			0, h.-fr : 2, ci.-cu, h	1, ci, h : 10, li.-cl
2			10, r : 10	10 : li.-cl, v : 0
3			3, ci.-s, h : 1, ci, h	2, ci : th.-cl, v
4			10 : 10, r, w	10, oc.-shs, r : 4, ci.-cu, r, w
5			10 : ci, ci.-cu, h, v	v : v
6			10, oc.-r : 10, oc.-r	10 : th.-cl, v
7			10 : 10	10, w
8			10, shs.-r, sc, w : 10, r	10, ci.-s, cu.-s, sc : ci.-s, h.-g, shs.-r, v
9			2, ci, ci.-cu : 10, ci, ci.-cu, w	7, cu.-s, ci.-cu, w, r, n, l, t : 0, w
10	0	0	4, ci, h : 10, th.-cl	th.-r, v : oc.-r, v
11	0 : w	0 : w	10, r, th.-cl, h.-g : ci.-s, cu.-s, v, r	ci.-cu, ci.-s, cu.-s, vv : v, r
12	0	0 : w	5, ci, ci.-cu, h	7, ci, ci.-cu, ci.-s : 3, ci, lu.-co, lu.-ha
13	0	0	10, r, sc : 10, ci.-cu, th.-cl, r	10, sc, r : 10, th.-cl
14	0	0	10, sc, th.-cl, r, w : 10, h.-r, sc, ci.-cu, cu.-s, sqs	9, cu.-s, ci.-cu, li.-cl, h.-r : 8, th.-cl, sqs
15	0	0	7, ci, ci.-s, cu.-s, sc, r : sc, v, oc.-shs	ci, ci.-cu, vv, oc.-shs : ci, ci.-cu, ci.-s, r, v
16	0	w : 0	10, th.-r : 10, th.-r	10, oc.-r : 10, th.-cl, oc.-r
17	0	0	10, th.-r : 10, li.-cl, h	4, ci.-cu, h : 10, ci.-cu, cu.-s
18	0	0	ci, ci.-cu, h.-d, v	10 : 10
19	0	0	ci, ci.-cu, cu.-s. v	ci, ci.-cu, v, oc.-shs : 7, ci, ci.-cu, ci.-s, sc
20	0	0	9, th.-cl, ci.-s, oc.-r, sc : 10, r	v, r : 10, s, st.-w, r
21	0	0	10, st.-w, c.-r : ci, ci.-cu, ci.-s, r, v	v, oc.-shs : ci, ci.-s, oc.-shs, v, w
22	0	0	ci, ci.-cu, cu, cu.-s, v	v, sl.-r : 10, th.-cl, th.-r : 10, m.-r
23			10, ci.-s, r : 9, ci.-cu, cu.-s	10, ci.-cu, cu.-s, sl.-r : 4, ci.-s
24			6, ci.-cu, cu.-s, r : 8, ci, ci.-cu, ci.-s, oc.-r	ci.-cu, cu.-s, v : r, v : 10, h.-r
25			10, gt.-glm : 10, glm	10, glm : 10, th.-r
26			10, ci.-s, cu.-s : 10, r	10 : 7, li.-cl
27	0	0	10, r : 9, ci, ci.-cu, ci.-s	7, ci, ci.-cu, ci.-s : d, v
28	0	0	5, ci, h : 7, li.-cl	li.-cl, v
29	0	0	6, ci, ci.-cu, h : 0	ci.-s : 0
30	0	0 : ssN, ssP, sp, g.-cur : 0	0 : 10, r : 10, th.-cl, oc.-shs	4, ci, ci.-cu, cu, cu.-s, n, t, h.-r, hl : 0

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 52°·2 on the 2nd ; and the lowest was 33°·4 on the 21st.

The mean ,, was 43°·0, being 2°·6 *higher* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·277, being 0^{in}·026 *greater* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 3^{grs}·1, being 0^{grs}·2 *greater* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 80 (that of Saturation being represented by 100), being 1 *greater* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 539 grains, being 4 grains *less* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·4.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 0·4.

WIND.

The proportions were of N. 3, S. 9, W. 15, E. 2, and Calm 1. The greatest pressure in the month was 26^{lbs}·0 on the square foot on the 9th.

RAIN.

Fell on 20 days in the month, amounting to 2^{in}·16, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·43 *greater* than the average fall of the preceding 52 years.

ELECTRICITY.

The insulating lamp was not burning from April 1 to 9 and 23 to 26.

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Results of Daily Meteorological Observations

MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer, with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Pressure in lbs. on the square foot. Greatest.	Pressure in lbs. on the square foot. Least.	Pressure in lbs. on the square foot. Mean of 24 Obs.	Robinson's Amount of Horizontal Movement of the Air on each Day.	Rain in Inches collected in a Gauge Resting on the Ground, with receiving surface 5 inches above the ground.
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
May 1	In Equator	29·801	61·3	42·5	49·7	41·6	99·6	37·5	51·8	49·7	8·1	15·4	2·2	— 0·1	WSW : W	WNW : ESE	1·9	0·0	0·3	178	0·03
2	..	29·926	60·9	40·5	50·9	44·5	124·0	35·0	51·8	48·7	6·4	12·9	1·1	+ 0·6	SE	NE : S	0·1	0·0	0·0	160	0·00
3	..	29·971	68·4	45·0	56·3	44·4	129·0	41·0	53·8	51·7	11·9	20·3	4·2	+ 5·5	S : SW	SSW : S by E	0·3	0·0	0·0	173	0·00
4	New	29·936	68·0	46·0	56·8	43·9	127·0	38·0	54·8	53·2	12·9	22·3	3·8	+ 5·6	S by E	SSE : SE : E	1·5	0·0	0·2	212	0·00
5	Perigee	29·825	71·5	43·7	57·2	47·4	131·3	35·5	55·8	53·7	9·8	20·2	2·0	+ 5·7	ESE : SE	SSE : E	1·2	0·0	0·2	157	0·00
6	..	29·780	83·3	49·2	66·9	54·9	135·9	47·8	56·3	54·7	12·0	24·1	1·9	+15·2	Calm	S : SSE	0·8	0·0	0·0	185	0·00
7	Greatest Declination N.	29·831	83·6	57·5	68·7	55·9	139·1	49·3	58·8	56·7	12·8	23·1	6·8	+17·0	S : SW	NNE : E	2·3	0·0	0·1	219	0·00
8	..	29·727	79·9	50·5	64·2	51·6	139·0	46·8	59·8	56·7	12·6	28·9	4·0	+12·5	E	SSW	1·2	0·0	0·1	213	0·00
9	..	29·771	75·6	50·6	62·7	51·8	139·6	48·2	60·8	58·7	10·9	19·4	2·4	+11·2	SW	SW : NE : SE	0·3	0·0	0·0	125	0·00
10	First Qr.	29·580	79·6	53·4	64·9	54·2	132·0	48·0	63·8	61·7	10·7	22·6	2·9	+13·6	SE	SSE : E	5·7	0·0	0·2	231	0·05
11	..	29·404	68·9	53·4	59·3	51·1	132·3	47·1	63·8	59·7	8·2	15·1	1·6	+ 8·1	SE : WSW	WSW : SW	8·5	0·0	0·7	276	0·31
12	..	29·285	57·5	48·0	51·7	49·5	70·8	41·5	61·8	59·7	2·2	4·9	0·9	+ 0·5	E	E : NE	2·3	0·0	0·2	248	0·11
13	..	29·477	50·4	45·2	46·3	40·0	68·0	45·0	61·8	59·7	6·3	8·4	3·7	— 5·1	NE	ENE	1·7	0·0	0·2	321	0·01
14	In Equator	29·655	51·3	43·1	45·2	34·1	88·6	42·4	58·8	58·2	11·1	15·0	5·5	— 6·5	NE	ENE	12·5	0·0	1·4	414	0·00
15	..	29·740	49·3	41·3	43·3	34·3	69·0	39·7	56·3	55·1	9·0	10·5	7·0	— 8·7	NE	NE : NNE	3·9	0·0	1·0	382	0·00
16	..	29·890	53·3	41·3	45·2	37·0	93·9	40·2	54·3	51·7	8·2	10·6	6·0	— 7·1	NNE	NNE	3·3	0·0	0·7	170	0·00
17	..	29·965	57·8	38·0	46·0	37·7	105·0	34·2	51·8	49·7	8·3	13·6	4·3	— 6·6	E : SE	SW : S	0·3	0·0	0·0	130	0·00
18	Full	29·864	63·0	34·9	49·9	42·2	130·0	31·3	53·8	50·7	7·7	18·1	1·3	— 3·0	S : SE	E : ENE	1·1	0·0	0·1	213	0·00
19	..	29·651	68·0	43·0	54·3	47·3	123·0	36·4	53·8	51·7	7·0	16·4	1·5	+ 1·1	ENE : E	E	1·2	0·0	0·1	140	0·00
20	..	29·446	65·4	49·8	54·6	52·2	98·7	45·0	54·3	52·2	2·4	8·3	0·0	+ 1·1	Calm	WSW : S	0·0	0·0	0·0	157	0·03
21	Apogee. Greatest Declination S.	29·535	53·7	38·0	43·6	41·4	58·5	35·0	54·8	52·7	2·2	6·4	0·0	—10·2	S : N	NNE : N	4·7	0·0	0·6	346	0·36
22	..	29·836	50·6	34·2	40·4	34·6	110·4	28·2	53·8	51·7	5·8	14·3	0·8	—13·7	N : NNW	NNE : N	8·4	0·0	0·4	348	0·10
23	..	29·902	52·2	32·3	40·7	33·2	107·0	28·0	53·3	51·2	7·5	12·6	2·2	—13·6	NNW : N	N : NNE	20·0	0·0	1·7	343	0·00
24	..	30·000	53·7	31·9	41·7	33·5	112·3	25·7	52·8	50·7	8·2	17·8	3·0	—12·9	N by W : NE	ENE : SE : E	0·6	0·0	0·0	154	0·00
25	..	29·845	54·0	32·6	44·3	36·9	107·0	25·9	51·8	49·7	7·4	13·9	1·5	—10·6	ENE	ENE	4·0	0·0	0·5	297	0·00
26	Last Qr.	29·487	67·8	46·5	54·9	51·2	122·8	41·7	52·8	50·7	3·7	8·6	1·0	— 0·3	E : ESE	SSW : SE	1·7	0·0	0·1	215	0·29
27	..	29·472	65·0	50·6	55·6	49·3	113·8	46·6	52·5	49·7	6·3	13·9	1·2	+ 0·2	SSW	SSW	3·3	0·0	0·6	355	0·31
28	In Equator	29·674	71·0	48·0	57·7	50·4	120·0	43·8	52·8	50·6	7·3	15·3	2·7	+ 2·0	S by W	S by W	7·3	0·0	0·6	291	0·02
29	..	29·769	72·6	50·9	61·1	54·9	127·4	46·0	53·8	50·7	6·2	13·5	1·7	+ 5·1	S : SSE	E	1·7	0·0	0·1	193	0·02
30	..	29·872	74·7	55·3	62·5	55·6	136·2	50·0	54·3	51·7	6·9	15·3	1·9	+ 6·2	SW	SW	0·9	0·0	0·0	204	0·07
31	..	29·959	73·0	48·4	58·3	51·8	139·8	..	58·8	56·7	6·5	18·0	2·1	+ 1·7	SW	SW	0·6	0·0	0·0	194	0·00
																				Sums	Sum
Means	..	29·738	64·7	44·7	53·4	45·4	113·9	40·0	55·8	53·5	8·0	15·5	2·6	+ 0·5	...	...	..	..	..	7244	1·34

Barometer Readings from Eye-Observations.

The first maximum in the month was 29in·996 on the 3rd; the first minimum in the month was 29in·769 on the 6th.
The second maximum ,, was 29in·869 on the 7th; the second minimum ,, was 29in·695 on the 8th.
The third maximum ,, was 29in·803 on the 9th; the third minimum ,, was 29in·333 on the 11th.
The fourth maximum ,, was 29in·479 on the 11th; the absolute minimum ,, was 29in·225 on the 12th.
The fifth maximum ,, was 29in·983 on the 17th; the fifth minimum ,, was 29in·408 on the 20th.
The sixth maximum ,, was 29in·902 on the 22nd; the sixth minimum ,, was 29in·846 on the 23rd.
The absolute maximum ,, was 30in·003 on the 24th; the seventh minimum ,, was 29in·444 on the 27th.
The eighth maximum ,, was 29in·798 on the 29th; the eighth minimum ,, was 29in·735 on the 29th.
The ninth maximum ,, was 29in·968 on the 31st.
The range in the month was 0in·778.
The mean for the month was 29in·738, being 0in·037 *less* than the average of the preceding 26 years.

Temperature of the Air.

The highest in the month was 83°·6 on the 7th; the lowest was 31°·9 on the 24th.
The range ,, was 51°·7.
The mean ,, of all the highest daily readings was 64°·7, being 0°·2 *higher* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 44°·7, being 0°·5 *higher* than the average of the preceding 26 years.
The mean daily range was 20°·0, being 0°·3 *less* than the average of the preceding 26 years.
The mean for the month was 53°·4, being 0°·5 *higher* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY. A.M.	ELECTRICITY. P.M.	CLOUDS AND WEATHER. A.M.	CLOUDS AND WEATHER. P.M.
May 1	0	0	10, glm, r : 10	9, ci.-cu, ci.-s, h : ci, ci.-cu, ci.-s, v
2	0	0	li.-cl, d, h : 2, ci, ci.-cu, ci.-s, h	7, th.-cl, cu.-s : 6, cu.-s, n : 0
3	0	0 : w	7, ci, ci.-cu : ci, h, v	3, ci, ci.-cu : 0 : 6, ci.-s, th.-cl, h
4	0	0	0 : 1, ci	3, ci, ci.-cu : 0 : 0
5	0	0	1, ci	0 : 0
6	0	0	0 : 2, ci	1, ci, h : 1, ci, ci.-s
7	0	0	0, h.-d : 2, ci, h	2, ci, ci.-s : 1, ci, d, lu.-co
8	0	0	li.-cl : 0	4, ci, ci.-cu : ci, ci.-s, v : 0
9	0	0	0, ci : 4, ci, ci.-s	5, ci, ci.-cu, ci.-s : ci, v, d
10	0	0 : wN	3, li.-cl : 7, ci, ci.-s, h : 9, cu.-s	ci, ci.-cu, ci.-s, v : t.-s, r, vv : 8, th.-cl, l
11	0	0	h.-r, t, s : 4, ci, ci.-cu, cu.-s	6, ci.-cu, ci.-s : ci.-s, ci, v
12	0	0	10, r	10 : 10, oc.-r
13	0	0	10, r : 10	10, r : 10
14	0	0	10, r : 10	10, r : 10
15	0	0	10, ci.-s, cu.-s	10 : 10
16	0	0	10, oc.-r : 10, ci.-s, cu.-s	10, oc.-r : 10
17	0	0	5, ci, ci.-cu, h	10, v : 0
18	0	0	6, ci, ci.-cu	2, ci : 2, ci
19	0	0	0 : 8, ci, ci.-cu, ci.-s	10, sl.-r : ci, ci.-cu, ci.-s, v
20	0	0	10, li.-cl, h, r : 10	10, h.-r : 10, h.-r, sc
21	0	0	10, r : 10, oc.-r	10, r : 7, ci.-s, cu.-s, oc.-r
22	0 : w	0 : ssN, ssP, sp, g.-cur : 0	5, ci.-cu, cu, r, sn	vv, f.-shs, fr.-r, sn, hl, sqs : vv, sqs, shs, fr.-r : 1, ci, ci.-s
23	0	0	10, st.-w : 10, h.-g	10, v : 0
24	0	0	0 : 10	10 : 1, ci.-cu : 0, fr
25	0	0	6, ci.-cu, ci, ci.-s	10, ci.-s, ci.-cu : 10 : 0
26	0	0	10, h.-r : 10, ci, ci.-cu, oc.-r	v : 10, r
27	0	0 : w	v, cu.-s, h.-shs.-r : vv, oc.-shs	ci, ci.-cu, ci.-s, cu.-s, v : 0
28	0	0	ci, ci.-cu, ci.-s, v	8, ci, ci.-cu, ci.-s : ci, ci.-s, ci.-cu, v, r
29	0	0	2, ci, ci.-cu	10, ci.-s, oc.-r : 7, ci.-s, cu.-s, oc.-r : 0, d
30	0	0 : w : 0	4, ci, h	10, ci.-s, r : 9, oc.-r, ci.-s, ci.-cu
31	0	0	10, mt : 10	5, ci, ci.-s : ci, ci.-cu, ci.-s, v : 0

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 61°·6 on the 7th; and the lowest was 31°·7 on the 23rd.

The mean ,, was 45°·4, being 0°·1 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·304, being 0^{in}·002 *greater* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 3^{grs}·4, being *the same as* the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 74 (that of Saturation being represented by 100), being 2 *less* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 537 grains, being 5 grains *less* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·6.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 1·7.

WIND.

The proportions were of N. 6, S. 9, W. 5, E. 10, and Calm 1. The greatest pressure in the month was 20^{lbs}·0 on the square foot on the 23rd.

RAIN.

Fell on 12 days in the month, amounting to 2^{in}·34, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·18 *greater* than the average fall of the preceding 52 years.

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Results of Daily Meteorological Observations

MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Osler's. Pressure in lbs. on the square foot. Greatest.	Least.	Mean of 24 Obs.	Robinson's. Horizontal Movement of the Air in Miles.	Rain in Inches, collected in a Gauge which projecting surface is 5 inches above the Ground.
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
June 1	..	29·959	77·5	48·2	63·2	51·9	137·0	41·8	58·9	55·7	11·3	27·2	1·9	+ 6·2	SSW	SW	1·9	0·0	0·2	198	0·00
2	New	29·794	79·7	51·0	65·0	57·1	135·0	45·0	59·8	56·7	7·9	16·5	0·6	+ 7·7	SSW : NE : E	E : S : NE	0·5	0·0	0·1	163	0·00
3	Perigee	29·591	61·8	50·7	55·1	53·9	77·4	45·0	..	..	1·2	3·0	0·8	— 2·3	NNE : N	NW : W by N : WSW	3·7	0·0	0·3	270	0·75
4	Greatest Declination N.	29·813	68·1	46·9	55·6	49·9	139·6	40·7	62·3	59·7	5·7	14·1	1·9	— 1·7	WSW	W : WSW	4·0	0·0	0·3	354	0·03
5	..	29·681	62·0	46·0	53·5	53·2	107·3	41·0	61·6	59·4	0·3	3·4	0·0	— 3·7	SW : SSW	SSW	15·0	0·0	1·0	399	0·23
6	..	29·572	65·9	53·3	57·5	49·4	125·9	51·8	60·8	58·7	8·1	12·7	3·6	+ 0·5	SW	SW	7·0	0·0	1·0	385	0·00
7	..	29·592	68·3	51·1	56·4	50·2	130·8	47·1	61·3	58·7	6·2	12·1	2·8	— 0·6	SW	SW : WNW	8·0	0·0	0·6	298	0·63
8	..	29·930	65·2	47·8	54·2	44·9	125·2	47·5	60·3	58·4	9·3	17·9	4·0	— 3·1	NNW : WSW	WSW : SW	2·4	0·0	0·4	329	0·00
9	First Qr.	30·035	70·0	51·2	58·5	47·1	129·6	47·6	60·5	58·7	11·4	17·5	2·4	+ 0·8	WSW : W : NW	WNW : W : SW	1·5	0·0	0·2	211	0·00
10	In Equator	30·127	78·2	51·1	64·1	53·7	141·0	45·0	60·8	59·7	10·4	19·6	4·2	+ 6·1	SW	WSW : S	1·1	0·0	0·1	159	0·00
11	..	30·098	79·3	52·4	65·8	55·5	142·5	46·1	61·8	61·7	10·3	24·1	0·2	+ 7·5	E : SE	SE	0·8	0·0	0·0	175	0·00
12	..	29·905	82·1	56·4	68·4	59·5	135·0	52·6	64·0	61·7	8·9	17·7	0·6	+ 9·8	S : SW	W : NW : N	1·1	0·0	0·1	214	0·00
13	..	29·869	66·5	54·2	57·7	51·3	121·6	50·0	63·8	61·7	6·4	9·5	3·8	— 1·1	NW : SW	WSW	0·8	0·0	0·1	206	0·06
14	..	29·693	63·3	47·6	54·0	44·8	94·0	42·0	63·4	62·7	9·2	14·3	4·6	— 5·0	NNW : W	NW : N by W	2·8	0·0	0·3	311	0·00
15	..	29·858	60·0	44·4	50·9	40·8	108·5	38·0	62·8	60·7	10·1	17·3	2·9	— 8·1	N by W	N by W : N	2·5	0·0	0·5	242	0·00
16	..	29·939	62·5	48·2	52·6	46·0	91·1	45·0	62·5	61·7	6·6	12·2	2·1	— 6·4	NNW	N	1·9	0·0	0·1	172	0·01
17	Full : Apogee.	29·989	60·7	44·5	51·0	47·6	98·0	38·0	61·8	59·7	3·4	8·9	0·6	— 8·0	WSW : W : NNW	ENE : ESE : S	0·0	0·0	0·0	131	0·01
18	Greatest Declination S.	29·926	72·1	45·8	58·4	53·4	109·3	40·0	..	..	5·0	12·8	0·8	— 0·7	SW : WSW	NNW : NNE	0·8	0·0	0·1	146	0·00
19	..	29·847	69·3	54·6	59·3	53·9	104·6	54·2	62·9	59·7	5·4	11·3	1·7	+ 0·1	NE	E : ENE	0·7	0·0	0·0	205	0·00
20	..	29·888	66·0	52·6	56·6	52·2	104·0	52·2	63·3	60·2	4·4	9·0	1·8	— 2·9	NE : N	NE	0·4	0·0	0·0	208	0·00
21	..	29·972	65·4	49·1	54·6	49·1	99·5	48·2	62·8	60·7	5·5	10·3	1·9	— 5·3	NNE	N : NE	0·5	0·0	0·0	147	0·00
22	..	29·979	69·4	44·6	54·5	48·4	133·5	39·1	61·8	59·7	6·1	19·6	0·2	— 5·8	NE	NE : ESE	0·0	0·0	0·0	125	0·00
23	..	29·846	71·7	49·0	59·1	48·8	135·5	43·7	62·8	62·7	10·3	21·1	0·6	— 1·6	N	N	1·8	0·0	0·2	247	0·00
24	..	29·857	67·3	53·8	58·6	51·8	121·0	44·2	62·3	61·7	6·8	12·4	2·0	— 2·6	N by W	N	2·0	0·0	0·4	285	0·00
25	Last Quarter ; In Equator.	30·106	73·2	48·0	59·3	49·4	138·0	41·8	61·8	60·7	9·9	21·4	1·3	— 2·3	N	N : NNE	2·5	0·0	0·5	328	0·00
26	..	30·370	72·9	47·2	58·4	47·1	140·6	40·6	62·8	61·7	11·3	23·9	1·5	— 3·3	NNE	N	2·2	0·0	0·6	295	0·00
27	..	30·391	80·9	44·8	62·2	42·2	150·4	33·0	63·8	62·7	20·0	36·9	1·9	+ 0·6	N	N	1·8	0·0	0·2	231	0·00
28	..	30·388	69·4	51·2	57·7	47·6	137·1	43·4	63·8	62·7	10·1	17·8	4·9	— 3·8	N	N	4·5	0·0	0·7	250	0·00
29	..	30·191	76·1	40·5	58·7	48·7	138·0	30·0	63·5	62·0	10·0	22·9	1·1	— 2·7	NNE : SW	SW	0·4	0·0	0·0	146	0·00
30	..	29·839	81·1	46·8	63·3	51·9	140·5	38·0	64·8	62·7	11·4	24·5	4·6	+ 2·2	SW : NW	SW	0·5	0·0	0·0	123	0·00
Means	..	29·935	70·2	49·1	58·1	50·0	123·0	43·8	62·2	60·5	8·1	16·4	2·0	— 1·0	...	...	..	..	..	6953	1·77

Barometer Readings from Eye-Observations.

The first maximum in the month was 29in·853 on the 4th; the first minimum in the month was 29in·551 on the 3rd.
The second maximum ,, was 30in·144 on the 11th; the absolute minimum ,, was 29in·551 on the 6th.
The third maximum ,, was 30in·013 on the 17th; the third minimum ,, was 29in·659 on the 14th.
The fourth maximum ,, was 30in·023 on the 22nd; the fourth minimum ,, was 29in·838 on the 19th.
The absolute maximum ,, was 30in·411 on the 27th; the fifth minimum ,, was 29in·814 on the 23rd.
The range in the month was 0in·860.
The mean for the month was 29in·935, being 0in·139 *higher* than the average of the preceding 26 years.

Temperature of the Air.

The highest in the month was 82°·1 on the 12th; the lowest was 44°·4 on the 15th.
The range ,, was 37°·7.
The mean ,, of all the highest daily readings was 70°·2, being 0°·9 *lower* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 49°·1, being 1°·1 *lower* than the average of the preceding 26 years.
The mean daily range was 21°·1, being 0°·2 *greater* than the average of the preceding 26 years.
The mean for the month was 58°·1, being 1°·0 *lower* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
June 1	0	0	1, ci : 2, ci	1, ci : 0
2	0	0	0	ci, ci.-s, ci.-cu : ci, ci.-s, v
3	0	0	10, h.-r, t, l, sqs : 10, th.-r	10, r : ci, ci.-cu, ci.-s, r
4	0 : sN,sP,sp,g.-cur	0	7, ci, ci.-cu, ci.-s, cu.-s: cu.-s, sl.-r, t	ci.-cu, ci.-s, r, vv : ci.-s, ci.-cu
5	0	0	10, r, st.-w : 10, r	10, r : 10, oc.-r
6	0	0	10, ci.-s : 10	ci, ci.-cu, cu, v : ci, ci.-s, vv
7	0	s : 0	6, ci, ci.-cu, ci.-s : 10, h.-r	ci.ci.-cu,cu.-s,h.-r,t, vv : 10, ci.-s, cu.-s, h.-r, t, l
8	w	0	6, ci.-cu, ci.-s, cu.-s, glm	ci, ci.-cu, ci.-s, v : ci, ci.-s, v
9			8, ci, ci.-cu, cu, h	v, ci, ci.-cu, h : 2, ci, ci.-s
10			0 : 0	0 : 0
11			0 : 0	0 : 0, d
12			2, ci : li.-cl, v	5, ci : 8, ci.-s
13			7, ci, ci.-cu, r : 10, v	10 : 10, cu.-s, ci.-s
14			9, ci, ci.-cu : 10, r	10 : ci, ci.-s, r, v : 0
15			8, ci, ci.-cu, cu.-s	8, ci, ci.-s, cu.-s, ci.-cu : 10, th.-r
16			10, r	10 : 7, ci, ci.-s, oc.-r
17			10, ci.-s, ci.-cu, h	10, glm : 10, glm, oc.-r :6,ci.-cu,ci.-s,oc.-r
18			10, ci.-s	10, ci.-cu, ci.-s, cu.-s, h : ci, ci.-s, v
19			10, cu.-s, ci.-s	10 : 10, sc, v
20			10	10 : 10 : 10
21			10, ci.-s, cu.-s	10 : 10 : 10, th.-r
22			10, ci.-s, ci.-cu : li.-cl	1, ci : 2, ci, ci.-cu : ci.-s, h, d, vv
23			0	0 : 0, d : 10
24			10 : th.-cl	10, th.-cl : 10, ci.-s
25			2, ci	4, ci : 4, ci, v
26			4, ci, ci.-cu, v	ci, ci.-cu, v : 0 : 0, d
27			0	0 : 1, ci, ci.-s
28			10	5, ci,ci.-s,ci.-cu : 3, ci : 0
29			0, h : h, v	ci, ci.-cu, h, v : ci, ci.-s, v
30			10, li.-cl	6, ci, ci.-s, ci.-cu : 9, ci, ci.-s, ci.-cu, cu.-s

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 63°·6 on the 12th; and the lowest was 40°·5 on the 15th.

The mean ,, was 50°·0, being 0°·8 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was $0^{in}\cdot361$, being $0^{in}\cdot012$ *less* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was $4^{grs}\cdot0$, being $0^{grs}\cdot2$ *less* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 75 (that of Saturation being represented by 100), being 1 *greater* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 535 grains, being 4 grains *greater* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·1.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 1·2.

WIND.

The proportions were of N. 12, S. 5, W. 9, E. 4, and Calm 0. The greatest pressure in the month was $15^{lbs}\cdot0$ on the square foot on the 5th.

RAIN.

Fell on 7 days in the month, amounting to $1^{in}\cdot77$, as measured in the simple cylinder gauge partly sunk below the ground; being $0^{in}\cdot22$ *less* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning from June 9 to 30.

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Results of Daily Meteorological Observations

MONTH and DAY, 1867.		Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 30 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Pressure in lbs. on the square foot. Greatest.	Pressure in lbs. on the square foot. Least.	Pressure in lbs. on the square foot. Mean of 24 Obs.	Robinson's Horizontal Movement of the Air in each Day.	Rain in Inches, collected in a Gauge whose receiving surface is 5 inches above the Ground.
			in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles	in.
July	1	Greatest Dec. N. Perigee. New.	29·663	81·5	50·8	66·0	55·7	148·2	42·2	65·3	63·7	10·3	23·1	0·6	+ 5·1	NE	ESE: SSW: SSE	1·0	0·0	0·0	142	0·00
	2	..	29·557	71·8	57·3	61·9	59·1	117·0	56·5	..	..	2·8	7·9	0·0	+ 0·8	SSE: E: WSW	WSW: W	2·2	0·0	0·2	250	0·25
	3	..	29·858	71·3	55·2	60·5	53·2	121·2	54·3	66·8	63·8	7·3	14·8	3·8	— 0·8	NW	SW: SSE	1·8	0·0	0·2	226	0·00
	4	..	29·726	71·8	56·9	61·6	57·0	100·8	54·9	65·8	63·7	4·6	10·9	2·1	+ 0·1	S by W	S by W: SW	1·5	0·0	0·2	212	0·06
	5	..	29·910	71·7	54·3	60·4	48·9	141·8	50·0	64·8	62·7	11·5	21·2	2·7	— 1·3	W: NW	WNW: NW	2·5	0·0	0·2	274	0·03
	6	..	30·018	73·3	45·9	59·4	47·2	142·0	37·8	65·8	63·7	12·2	22·4	1·9	— 2·4	WSW	W by N: NNE	1·9	0·0	0·2	200	0·00
	7	In Equator	30·118	71·6	48·1	59·0	49·2	136·2	..	..	..	9·8	20·0	0·0	— 2·9	N	NE: SE	0·5	0·0	0·0	109	0·00
	8	First Quarter.	30·137	74·0	46·7	58·3	50·1	141·0	43·8	..	..	8·2	19·0	1·9	— 3·4	SE: NE	NNE: SE	0·6	0·0	0·0	123	0·00
	9	..	30·121	73·6	45·0	59·3	52·7	124·8	37·8	65·3	63·7	6·6	18·0	2·0	— 2·4	Calm: SW: NE	NE: ESE	0·2	0·0	0·0	111	0·00
	10	..	30·062	74·8	47·9	60·6	47·5	144·2	41·0	64·8	62·7	13·1	21·1	0·6	— 1·2	SE: NE	NE: E	0·2	0·0	0·0	115	0·00
	11	..	29·945	74·1	45·4	59·8	51·6	148·0	44·5	65·1	62·9	8·2	21·4	1·1	— 2·0	E: ENE	E	0·7	0·0	0·1	173	0·00
	12	..	29·684	73·6	53·4	62·5	54·3	120·0	53·2	65·8	63·7	8·2	18·2	1·0	+ 0·5	ENE	E by N: E	2·0	0·0	0·1	160	0·00
	13	..	29·590	75·3	53·2	60·4	56·7	113·0	45·4	66·0	63·7	3·7	12·8	0·0	— 1·9	N: SW	WSW: SSW	1·4	0·0	0·0	198	0·03
	14	Apogee	29·604	73·6	54·4	62·0	48·5	151·6	48·4	65·3	62·7	13·5	24·1	0·5	— 0·5	SSW: SW	SW: S	5·6	0·0	0·7	312	0·13
	15	Greatest Declination S.	29·373	64·0	52·7	56·7	54·7	89·0	45·1	64·5	63·7	2·0	8·4	0·0	— 5·8	SE	S: SSW	16·0	0·0	1·4	529	0·22
	16	Full	29·384	68·4	54·1	57·3	52·9	129·8	48·5	63·8	62·7	4·4	13·9	1·0	— 5·1	SW	SW	18·7	0·0	1·8	472	0·74
	17	..	29·559	71·0	53·0	59·7	50·1	137·8	47·3	62·8	58·9	9·6	17·3	3·4	— 2·5	SW	WSW: SW	16·2	0·0	2·0	419	0·00
	18	..	29·423	69·0	55·7	58·6	55·2	107·0	52·9	62·5	59·7	3·4	12·6	0·0	— 3·3	SW	WSW: SW	7·5	0·0	0·8	416	0·51
	19	..	29·536	67·3	51·2	58·1	51·8	125·5	47·0	61·8	59·7	6·3	10·8	2·2	— 3·5	WSW	WSW	10·3	0·0	1·2	357	0·04
	20	..	29·649	74·3	54·0	60·3	52·6	129·6	52·6	63·8	61·7	7·7	15·1	0·2	— 1·1	W	SW: S	2·7	0·0	0·2	320	0·03
	21	..	29·520	74·1	57·5	64·0	56·3	139·0	57·2	62·8	60·7	7·7	16·6	1·5	+ 2·5	SW	SSW	3·4	0·0	0·5	290	0·01
	22	In Equator	29·551	74·0	53·8	62·7	54·1	134·8	53·4	63·8	61·7	8·6	18·4	0·8	+ 1·2	SSW	SW	6·8	0·0	0·7	327	0·24
	23	..	29·485	71·3	54·4	61·4	55·6	136·5	54·2	63·8	61·7	5·8	13·7	2·6	— 0·2	SW	SSW	15·0	0·0	0·6	363	0·00
	24	Last Quarter.	29·566	72·9	51·8	61·2	49·0	151·1	51·0	64·8	62·7	12·2	20·2	0·4	— 0·5	SW	SW	2·0	0·0	0·2	215	0·00
	25	..	29·628	73·0	45·8	59·5	47·7	144·9	..	65·3	63·0	11·8	22·0	1·3	— 2·3	SSW: S	E: ENE	1·0	0·0	0·1	262	0·00
	26	..	29·517	57·9	51·3	53·4	53·1	87·0	50·0	63·8	63·7	0·3	2·3	0·0	— 8·5	NE: N	N: NNW	17·5	0·0	1·5	405	3·67
	27	..	29·874	60·4	46·0	52·2	46·3	98·0	40·5	62·2	59·8	5·9	11·2	1·5	— 9·8	WNW	NNW: SW	0·8	0·0	0·1	168	0·00
	28	Greatest Declination N.	29·952	67·7	45·2	55·3	46·8	125·1	40·0	61·1	59·2	8·5	16·5	1·1	— 6·9	SW: W	W: NW	4·2	0·0	0·2	210	0·00
	29	..	29·901	68·2	45·2	55·4	46·6	133·0	38·7	62·0	59·7	8·8	20·9	1·1	— 6·9	WSW: NNW	NNW: N: E	1·1	0·0	0·1	164	0·00
	30	Perigee	29·875	68·2	43·3	55·1	47·9	124·5	40·0	62·2	60·7	7·2	19·6	0·9	— 7·3	WSW: NW	NW: N: SE	0·4	0·0	0·0	120	0·00
	31	New	29·847	70·2	45·2	58·6	51·6	131·8	37·4	62·3	61·1	7·0	18·2	0·4	— 3·8	SE	SE: E	0·4	0·0	0·0	159	0·00
Means		..	29·730	71·1	50·8	59·4	51·7	128·2	47·1	64·1	62·1	7·7	16·5	1·2	— 2·5	...	...	..	..	..	Sum 7741	Sum 5·81

Barometer Readings from Eye-Observations.

The first maximum in the month was 29in·882 on the 3rd; the first minimum in the month was 29in·525 on the 2nd.
The absolute maximum ,, was 30in·156 on the 8th; the second minimum ,, was 29in·712 on the 4th.
The third maximum ,, was 29in·656 on the 14th; the third minimum ,, was 29in·575 on the 13th.
The fourth maximum ,, was 29in·619 on the 17th; the absolute minimum ,, was 29in·256 on the 15th.
The fifth maximum ,, was 29in·693 on the 20th; the fifth minimum ,, was 29in·381 on the 18th.
The sixth maximum ,, was 29in·563 on the 22nd; the sixth minimum ,, was 29in·508 on the 21st.
The seventh maximum ,, was 29in·655 on the 25th; the seventh minimum ,, was 29in·478 on the 23rd.
The eighth maximum ,, was 29in·965 on the 28th; the eighth minimum ,, was 29in·422 on the 26th.
The range in the month was 0in·900.
The mean for the month was 29in·730, being 0in·072 *less* than the average of the preceding 26 years.

Temperature of the Air.

The highest in the month was 81°·5 on the 1st; the lowest was 43°·3 on the 30th.
The range ,, was 38°·2.
The mean ,, of all the highest daily readings was 71°·1, being 2°·6 *lower* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 50°·8, being 2°·1 *lower* than the average of the preceding 26 years.
The mean daily range was 20°·3, being 0°·6 *less* than the average of the preceding 26 years.
The mean for the month was 59°·4, being 2°·3 *lower* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
July 1			1, ci, h : 8, ci, ci.-cu, cu.-s, h	ci, ci.-cu, cu.-s, v : ci.-s, vv, r, l
2		o	10 : 10, h.-r	9, ci, ci.-cu, ci.-s, oc.-r: 10, r, glm
3	o	o : w	10	10, ci, ci.-cu, ci.-s, h : 10
4	o	w : o : m	10, r : 10, ci.-s, cu.-s	9, ci, ci.-cu, ci.-s, cu.-s, shs.-r: 4, ci, ci.-s
5	w	w	8, ci.-cu, cu.-s : 5, ci.-cu, cu, ci, h^s	7, ci, ci.-cu, cu, cu.-s, h: ci.-s, v
6	o	o	5, ci, ci.-cu	8, ci, ci.-cu : 10, cu.-s, ci.-cu, ci.-s, r
7	o	o	6, ci, ci.-cu, ci.-s	ci, ci.-cu, ci.-s, v : ci, ci.-cu, v
8	o	o : m	1, ci	ci, ci.-cu, ci.-s, v : o
9	o	w : o	2, li.-cl, h : li.-cl	8, ci, ci.-cu, ci.-s, cu.-s : v
10	w	w : o	o : o	o : o
11	w	o : w	7, th.-cl, ci	2, ci : li.-cl, ci.-s, v
12	o	o	10, ci, ci.-s	9, ci, ci.-cu, ci.-s : ci, v
13	o	o :ssN,ssP,sp,g.-cur: w	10, r : 10, oc.-r	10,ci.-cu,ci.-s,cu.-s,t,l,h-r: 3, ci, ci.-s, oc.-r
14	o	o	5, ci, ci.-cu, cu.-s, cu	ci, ci.-cu, cu.-s, vv,t,r,hl: v
15	o	o	10, r, w : 10, sqs, w, r	10, w, sqs, oc.-r : 10, sc, oc.-r
16	o	o	vv, r : vv, r, st.-w	10, oc.-h.-r : ci.-s, vv, oc.-r : o
17			ci, ci.-cu, ci.-s, cu.-s, vv, st.-w	9, shs.-r, ci, ci.-cu, ci.-s, cu.-s: vv
18			10, r : 10, r	ci,ci-cu,ci.-s,oc.-r,v: 3,cu.-s,ci,ci.-s,oc.-shs.-r: li.-cl
19			10, r : v : 10	ci,ci.-cu,ci.-s,cu.-s,v,oc.-r: 10, oc.-r
20			5, ci, ci.-cu : ci, ci.-s, cu.-s, v	9, ci, ci.-cu, cu.-s, h : 10, r
21			10, ci.-cu, cu.-s	v, r : 10, r
22			10, r : 3, ci, ci.-s, ci.-cu, oc.-r	2, ci, ci.-cu, r : 10, ci.-s, cu.-s, glm, sc, r
23			9, ci, ci.-cu, ci.-s	ci, ci.-cu, ci.-s, v : 7, cu.-s, ci, ci.-cu, v
24			2, ci, ci.-cu	ci.-cu, cu.-s, ci, v : ci, ci.-s, vv, r
25	o	o	5, ci, ci.-cu, cu.-s	7, li.-cl, ci.-s, ci.-cu : 10, r
26	o	o	10, c.-h.-r : 10, c.-h.-r	10, r : 10, r : 10, h.-g
27			10	10, ci.-cu : 10,ci.-s,ci.-cu,s,f: v
28			5, ci, ci.-cu, ci.-s, cu	ci, ci.-cu, ci.-s, v : ci.-s, ci.-cu, s, v
29			6, ci, ci.-cu, h	ci, ci.-cu, cu.-s, h, v : 1, ci.-cu, ci.-s, d
30			7, li.-cl, h, h.-d	8, li.-cl, h : 9, ci, cu.-s, d
31			1, ci	4, ci, ci.-cu, ci.-s, cu.-s: o

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 62°·7 on the 2nd; and the lowest was 44°·2 on the 10th.

The mean „ was 51°·7, being 2°·0 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·384, being 0^{in}·029 *less* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 4^{grs}·3, being 0^{grs}·3 *less* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 76 (that of Saturation being represented by 100), being *the same as* the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 530 grains, being 2 grains *greater* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·0.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 1·7.

WIND.

The proportions were of N. 5, S. 10, W. 10, E. 6, and Calm 0. The greatest pressure in the month was 18^{lbs}·7 on the square foot on the 16th.

RAIN.

Fell on 12 days in the month, amounting to 5^{in}·81, as measured in the simple cylinder gauge partly sunk below the ground; being 3^{in}·24 *greater* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning on July 1, from 17 to 24, and 27 to 31.

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MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a self-Registering Thermometer, with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Osler's. Pressure in lbs. on the square foot. Greatest.	Osler's. Pressure in lbs. on the square foot. Least.	Osler's. Pressure in lbs. on the square foot. Mean of 24 Obs.	Robinson's. Amount of Horizontal Movement of the Air on each Day.	Rain in Inches collected in a Gauge [illegible]
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles	in.
Aug. 1	..	29·838	59·6	51·1	54·6	46·9	86·8	..	62·8	61·0	7·7	10·8	2·2	— 7·8	NE : NNE	NNE	2·0	0·0	0·3	316	0·00
2	..	29·861	59·6	47·7	51·1	46·0	79·0	41·7	61·8	60·2	5·1	9·9	3·4	—11·3	N by W	N	1·6	0·0	0·2	158	0·00
3	..	29·903	68·4	40·9	55·0	51·1	100·4	34·1	62·3	59·9	3·9	16·7	0·0	— 7·4	WSW: W : NW	NNW : SW	0·3	0·0	0·0	121	0·00
4	In Equator	29·905	69·1	51·5	59·7	55·4	106·0	51·5	61·5	60·7	4·3	10·4	0·8	— 2·6	WSW : NE	NE : SW	0·3	0·0	0·0	139	0·00
5	..	29·837	73·0	50·3	60·9	52·9	130·3	42·0	..	..	8·0	15·8	1·0	— 1·3	SW	SW	1·4	0·0	0·1	236	0·01
6	..	29·616	64·8	53·0	55·9	54·9	101·5	53·0	61·8	59·7	1·0	4·5	0·0	— 6·2	S : SW	SW	1·0	0·0	0·1	225	0·00
7	First Qr.	29·610	66·2	49·1	55·7	54·0	121·5	40·1	60·8	58·7	1·7	9·9	0·0	— 6·3	SW	SW : SSW	0·8	0·0	0·1	226	0·00
8	..	29·582	74·5	55·7	63·1	56·3	140·2	51·8	61·3	59·2	6·8	15·8	1·9	+ 1·1	SW	WSW : SW	3·3	0·0	0·5	338	0·00
9	..	29·714	74·2	57·6	63·3	52·9	140·1	..	62·8	61·7	10·4	15·8	3·8	+ 1·2	SW	WSW	2·9	0·0	0·3	245	0·00
10	..	29·967	75·9	49·4	62·3	54·8	105·8	41·2	63·8	62·7	7·5	17·3	0·0	+ 0·2	SW	SW	0·3	0·0	0·0	145	0·00
11	Apogee: Greatest Dec. S.	30·012	76·2	50·2	63·5	55·5	134·4	46·0	63·0	60·9	8·0	15·3	1·0	+ 1·4	SW : W	SW : SE	0·2	0·0	0·0	106	0·00
12	..	29·949	82·1	61·6	70·9	57·0	140·9	56·5	62·8	60·7	13·9	24·0	3·6	+ 8·9	SE	SSE : ESE	1·0	0·0	0·1	160	0·00
13	..	29·873	85·3	56·5	71·2	59·2	147·1	48·2	64·3	62·9	12·0	26·7	3·0	+ 9·3	E	SE : E	1·1	0·0	0·1	156	0·00
14	..	29·781	89·0	61·2	75·5	65·3	141·0	57·0	64·8	63·7	10·2	21·9	1·1	+13·8	SE : SW	SSE : S	0·3	0·0	0·0	138	0·00
15	Full	29·547	70·0	59·3	60·6	59·2	94·3	58·6	66·0	63·8	1·4	3·6	0·0	— 0·9	SW	SSW	0·7	0·0	0·1	211	0·00
16	..	29·608	72·6	54·2	59·8	52·6	123·0	48·0	65·8	63·7	7·2	14·2	0·8	— 1·5	SW	W : SW	2·2	0·0	0·2	30[illegible]	0·00
17	..	29·750	71·1	53·7	61·4	55·3	114·2	47·4	..	..	6·1	11·0	5·1	+ 0·3	SW	SW	13·8	0·0	1·0	383	0·00
18	In Equator	29·917	74·5	60·1	64·9	60·1	129·2	55·2	..	..	4·8	9·4	2·7	+ 3·9	SW	SW	1·2	0·0	0·1	152	0·00
19	..	29·871	79·6	55·7	67·6	60·1	135·6	55·0	65·8	64·7	7·5	16·5	1·3	+ 6·7	SE	SSW : SE	0·3	0·0	0·0	181	0·00
20	..	29·745	74·7	56·0	63·0	57·5	131·5	53·0	67·8	65·7	5·5	14·0	1·3	+ 2·2	SE : SW	SW	3·8	0·0	0·5	312	0·00
21	..	29·857	73·3	53·8	61·5	54·9	120·9	47·7	65·8	63·7	6·6	13·0	0·6	+ 0·8	SW	SW	0·6	0·0	0·1	163	0·00
22	Last Qr.	29·884	74·9	50·2	62·1	54·3	136·0	43·7	65·8	64·2	7·8	17·5	0·8	+ 1·4	SW	SW	0·4	0·0	0·0	155	0·00
23	..	29·895	77·2	49·5	63·3	53·8	139·2	43·1	66·8	64·7	9·5	21·4	2·1	+ 2·7	SW	SW	0·2	0·0	0·0	137	0·00
24	..	29·925	78·1	50·9	63·3	60·0	136·0	44·6	67·0	64·2	3·3	13·9	0·8	+ 2·8	SW	SW	0·5	0·0	0·0	169	0·00
25	Greatest Declination N.	29·869	77·4	54·8	65·1	58·4	136·2	47·0	66·8	65·7	6·7	12·6	0·0	+ 4·6	SW	SSW	0·7	0·0	0·1	263	0·00
26	..	29·817	69·2	55·0	59·9	56·6	91·4	54·1	67·8	64·7	3·3	8·3	0·0	— 0·4	S : SSW	NNW : SW	0·6	0·0	0·0	142	0·00
27	Perigee	29·904	69·5	48·6	55·6	48·9	111·7	41·5	64·8	62·7	6·7	16·6	1·5	— 4·5	WSW : NW	NW : W : SW	0·1	0·0	0·0	162	0·00
28	..	30·023	68.9	46·3	57·8	52·9	100·5	41·8	64·8	62·7	4·9	13·5	1·0	— 2·1	SW	SW	1·0	0·0	0·1	241	0·00
29	New	30·023	73·4	56·5	63·4	60·7	118·0	50·8	65·0	63·7	2·7	9·5	0·6	+ 3·7	SSW : SW	SW	0·5	0·0	0·0	193	0·00
30	..	29·901	71·9	56·9	62·3	55·1	117·6	55·0	65·2	62·7	7·2	12·4	0·2	+ 2·9	SSW : SW	SW : S	1·1	0·0	0·0	147	0·00
31	In Equator	29·718	77·6	58·8	67·6	57·8	135·7	56·1	65·8	63·2	9·8	17·3	2·1	+ 8·4	E	E	1·6	0·0	0·1	163	0·00
Means	..	29·829	73·3	53·4	62·0	55·5	120·8	48·5	64·5	62·6	6·5	14·2	1·4	+ 0·8	...	...	..	..	..	6[illegible]	0·00

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 29in·926 on the 3rd; the first minimum in the month was 29in·820 on the 1st.
The second maximum ,, was 30in·022 on the 11th; the second minimum ,, was 29in·566 on the 8th.
The third maximum ,, was 29in·967 on the 18th; the absolute minimum ,, was 29in·501 on the 15th.
The fourth maximum ,, was 29in·953 on the 24th; the fourth minimum ,, was 29in·733 on the 20th.
The absolute maximum ,, was 30in·041 on the 29th; the fifth minimum ,, was 29in·809 on the 26th.
The sixth minimum ,, was 29in.696 on the 31st.
The range in the month was 0in·540.
The mean for the month was 29in·829, being 0in·044 *higher* than the average of the preceding 26 years.

TEMPERATURE OF THE AIR.

The highest in the month was 89°·0 on the 14th; the lowest was 40°·9 on the 3rd.
The range ,, was 48°·1.
The mean ,, of all the highest daily readings was 73°·3, being 0°·7 *higher* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 53°·4, being 0°·4 *higher* than the average of the preceding 26 years.
The mean daily range was 19°9, being 0°·3 *greater* than the average of the preceding 26 years.
The mean for the month was 62°0, being 0°·8 *higher* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Aug. 1			10	10 : 10
2			10	10 : o, d, h
3			10, th.-cl, h, f	10, ci.-s, h, f : 10, f : o, h
4			10, th.-cl, h	10, th.-cl, h : 4, ci.-cu, ci.-s, h
5			o : v	ci, ci.-cu, ci.-s, v, r : 10, r
6			10, r : 10, r	10, r : 2, ci.-s, oc.-r
7			9, ci, ci.-cu, ci.-s, cu.-s : 10, r	10, th.-r : oc.-r, v : 9, ci.-s
8			8, ci, ci.-cu, ci.-s, r : vv, h.-shs	ci, ci.-cu, cu, cu.-s, v: ci, ci.-s, vv
9			4, ci, ci.-cu, r	7, ci, ci.-cu, ci.-s : o
10	o	o : m	o, h	2, ci, ci.-cu : o, h.-d : o, d, ms
11	m : w	o : w	o, ms : 3, ci, ci.-cu, h	ci, ci.-cu, ci.-s, v : 10
12	o	o	5, li.-cl, d	1, ci : o, d : o, h.-d, ms
13	o	o	o	o : o, ms
14	o	o	2, ci : o	7, ci, ci.-cu : ci.-s, ci.-cu, cu.-s, v
15	o:ssN,ssP,sp,g.-cur:ssN,sp,g.-cur	o	10, l, h.-r, t : 10, h.-r	10, oc.-shs, r : 7, ci, ci.-cu, ci.-s, r
16	o	o	10, oc.-r : oc.-r, v	ci.-cu, cu.-s, v : 2, ci, d
17	o	o	10	10, ci.-s, ci.-cu, w : 10, w, sl.-r
18	o	o	10, r	10 : v, th.-r
19	o	o : o : w	li.-cl, h, d	3, ci, ci.-cu : v, t.-s, l
20	o	o	t.-s, l, h.-r : 10, oc.-r	6, ci, ci.-cu, ci.-s, cu.-s : v, h, d
21	o	o : w	9, ci.-cu	9, ci.-cu, cu.-s : 10 : th.-cl, d, v
22	o	o	o, h, d : o, ci	1, ci : o, h.-d
23	o	o	o	1, ci : o
24	o	o : w	10, li.-cl	4, ci.-cu : o, d
25	o	o	o	3, ci, ci.-s : ci.-s, v, r
26	o	o	10	10 : 10, oc.-r
27	o	o	10, sl.-f	6, ci.-cu : 7, li.-cl : o, d
28	o	o	10	10 : ci, ci.-cu, v
29	o	o	10	9, th.-cl, th.-r : 10, ci.-s, th.-r : 10, th.-r
30	o	o	7, ci, ci.-cu, ci.-s, cu.-s	ci, ci.-cu, cu.-s, v : ci, ci.-cu, v
31	o	o	3, ci	4, ci, ci.-s : 10, ci.-s, sl.-f, sl.-r

HUMIDITY OF THE AIR.

Temperature of the Dew Point.
The highest in the month was 67°·6 on the 14th; and the lowest was 45°·1 on the 2nd.
The mean ,, was 55°·5, being 1°·8 *higher* than the average of the preceding 26 years.
Elastic Force of Vapour.—The mean for the month was 0^{in}·441, being 0^{in}·024 *greater* than the average of the preceding 26 years.
Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 4^{grs}·9, being 0^{grs}·3 *greater* than the average of the preceding 26 years.
Degree of Humidity.—The mean for the month was 80 (that of Saturation being represented by 100), being 3 *greater* than the average of the preceding 26 years.
Weight of a Cubic Foot of Air.—The mean for the month was 528 grains, being 1 grain *less* than the average of the preceding 26 years.

CLOUDS.
The mean amount for the month, a clear sky being represented by o and a cloudy sky by 10, was 6·2.

OZONE.
The mean amount for the month, on a scale ranging from o to 10, was 1·3.

WIND.
The proportions were of N. 2, S. 14, W. 12, E. 3, and Calm o. The greatest pressure in the month was 13^{lbs}·8 on the square foot on the 17th.

RAIN.
Fell on 11 days in the month, amounting to 2^{in}·64, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·24 *greater* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning from August 1 to 9.

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MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Osler's. Pressure in lbs. on the square foot. Greatest.	Least.	Mean of 24 Obs.	Robinson's Amount of Horizontal Movement of the Air on each Day.	Rain in Inches, collected in Gauges whose Receiving Surface is 6 Inches
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
Sept. 1	..	29·751	79·9	59·0	67·9	59·2	142·4	51·8	66·0	63·7	8·7	15·1	1·1	+ 8·9	ENE: SW	SW	1·2	0·0	0·1	165	0·00
2	..	29·959	79·1	54·4	65·6	56·1	114·4	46·8	66·8	64·7	9·5	22·6	0·2	+ 6·9	SW: NE	E: ENE	1·9	0·0	0·1	209	0·00
3	..	29·829	71·7	61·6	64·8	63·1	95·0	60·0	..	..	1·7	5·8	0·0	+ 6·4	ENE: E	E	2·2	0·0	0·1	130	0·01
4	..	29·686	71·7	57·4	62·7	57·1	105·0	54·3	65·8	64·7	5·6	9·9	0·2	+ 4·5	SSE: SSW	SW: SSW	4·7	0·0	0·3	294	0·00
5	First Qr.	29·709	70·7	55·4	60·5	55·4	125·0	55·0	64·8	63·8	5·1	11·7	0·6	+ 2·5	SSW: W: SW	SW: SSW	2·6	0·0	0·3	269	0·00
6	..	29·628	69·1	52·4	59·6	52·8	116·0	47·1	64·5	63·5	6·8	12·4	2·8	+ 1·7	S: SSW	SSW	6·1	0·0	0·8	442	0·14
7	Greatest Dec. S: Apogee.	29·822	71·2	54·6	61·5	52·2	132·8	47·3	63·8	62·0	9·3	14·8	3·8	+ 3·7	SSW	SW	5·1	0·0	0·8	277	0·00
8	..	29·844	72·0	51·1	61·0	53·5	133·7	45·0	65·0	62·7	7·5	13·8	1·6	+ 3·2	S: SSW	S: SSE	1·0	0·0	0·1	167	0·00
9	..	29·708	72·8	53·8	61·7	54·4	136·0	50·8	..	..	7·3	14·9	0·6	+ 4·0	SSW: SW	SW: SE	1·1	0·0	0·1	260	0·07
10	..	29·747	71·0	51·4	58·9	51·5	135·8	44·6	63·8	61·7	7·4	15·7	0·0	+ 1·2	SW	WSW: SW: SSW	2·1	0·0	0·4	234	0·03
11	..	29·784	67·5	49·6	58·8	54·4	103·9	44·5	63·7	61·8	4·4	9·7	0·0	+ 1·2	S: SE	SSE: ESE	1·0	0·0	0·0	237	0·02
12	..	29·662	73·2	57·9	62·9	56·8	120·8	56·2	62·8	61·7	6·1	12·6	1·3	+ 5·4	SE: SSE	SW: SSW	1·6	0·0	0·3	193	0·01
13	..	29·796	71·4	53·4	59·0	52·1	103·0	49·7	62·3	61·7	6·9	15·3	0·8	+ 1·7	SW	SW	0·5	0·0	0·0	228	0·00
14	Full	29·842	68·8	49·1	58·1	50·6	106·0	45·7	61·8	59·7	7·5	13·7	0·4	+ 0·9	SW	SSW	6·3	0·0	0·7	380	0·00
15	In Equator	29·867	66·3	51·8	56·7	50·0	110·2	49·0	62·8	60·7	6·7	13·3	2·6	— 0·4	SW: WNW	NW: W	2·3	0·0	0·2	272	0·00
16	..	30·060	64·1	45·2	53·0	46·5	117·2	44·1	61·8	59·2	6·5	14·8	1·3	— 3·9	WSW: NW	N: NNW	1·4	0·0	0·2	200	0·00
17	..	30·188	61·2	44·2	52·0	44·8	105·7	36·3	59·8	57·7	7·2	13·3	3·1	— 4·7	NNW	NNE	4·6	0·0	0·6	376	0·14
18	..	30·149	65·8	50·1	56·6	50·6	111·8	45·0	60·0	58·7	6·0	12·4	2·7	+ 0·1	NNE	NE	16·7	0·0	0·9	339	0·03
19	..	29·993	68·3	49·7	57·5	52·7	111·1	47·0	59·8	58·7	4·8	13·9	1·7	+ 1·3	NE	ENE: N	1·0	0·0	0·1	219	0·00
20	..	30·012	66·1	46·5	53·7	48·6	124·2	..	59·8	58·7	5·1	12·9	2·5	— 2·3	N	N: NNE	1·4	0·0	0·2	175	0·00
21	Last Quarter; Greatest Dec. N.	29·975	66·0	45·5	53·9	48·3	100·0	37·7	59·8	58·7	5·6	14·4	0·0	— 1·9	N	SW	1·6	0·0	0·1	272	0·00
22	..	29·797	66·5	51·3	56·7	52·4	86·8	41·5	60·3	59·2	4·3	8·8	1·0	+ 1·2	SW	WNW: WSW	1·6	0·0	0·3	318	0·10
23	Perigee	29·814	67·6	46·8	55·7	54·2	88·3	38·8	60·0	57·7	1·5	7·4	0·0	+ 0·5	SW	WSW	4·9	0·0	0·7	399	0·03
24	..	30·051	61·0	42·0	50·3	41·5	112·2	38·0	59·8	57·7	8·8	14·6	0·0	— 4·7	WSW: NW	N: NNE: N by W	6·5	0·0	0·3	248	0·00
25	..	30·307	62·1	35·5	48·0	44·5	96·0	35·1	57·8	55·7	3·5	13·1	1·0	— 6·8	WSW	NNW: WSW	0·4	0·0	0·0	123	0·00
26	..	30·293	58·5	39·6	49·3	48·5	73·7	33·1	57·2	54·7	0·8	8·0	0·0	— 5·3	SW	Calm: S	0·0	0·0	0·0	110	0·00
27	In Eq: New	30·176	62.5	49·5	54·8	48·8	104·0	44·7	56·8	54·7	6·0	10·6	3·1	+ 0·4	SW	SW	0·5	0·0	0·0	210	0·00
28	..	30·080	64·7	49·8	56·3	49·4	94·0	41·9	57·8	55·2	6·9	13·3	1·6	+ 2·1	WSW	WSW: SW	1·6	0·0	0·2	347	0·00
29	..	30·032	62·6	49·4	54·9	49·7	78·0	47·2	56·8	54·7	5·2	9·2	0·8	+ 0·8	SW	WSW	4·8	0·1	0·8	417	0·00
30	..	29·898	66·7	49·6	56·1	48·5	128·2	42·3	55·8	53·7	7·6	12·6	2·7	+ 2·1	WSW.	WSW: WNW: W	6·4	0·1	1·4	411	0·03
Means	..	29·915	68·0	50·3	57·6	51·6	110·4	45·5	61·3	59·6	6·0	12·7	1·3	+ 1·0	...	...	..	..	..	Sum 8013	Sum 7·32

Barometer Readings from Eye-Observations.

The first maximum in the month was 29in·972 on the 2nd; the first minimum in the month was 29in·672 on the 4th.
The second maximum ,, was 29in·731 on the 5th; the absolute minimum ,, was 29in·605 on the 6th.
The third maximum ,, was 29in·923 on the 7th; the third minimum ,, was 29in·630 on the 9th.
The fourth maximum ,, was 29in·829 on the 11th; the fourth minimum ,, was 29in·631 on the 12th.
The fifth maximum ,, was 29in·907 on the 14th; the fifth minimum ,, was 29in·758 on the 14th.
The sixth maximum ,, was 30in·211 on the 18th; the sixth minimum ,, was 29in·974 on the 19th.
The seventh maximum ,, was 30in·045 on the 20th; the seventh minimum ,, was 29in·747 on the 22nd.
The eighth maximum ,, was 29in·914 on the 22nd; the eighth minimum ,, was 29in·766 on the 23rd.
The absolute maximum ,, was 30in·332 on the 25th; the ninth minimum ,, was 29in·862 on the 30th.
The range in the month was 0in·727.
The mean for the month was 29in·915, being 0in·097 *higher* than the average of the preceding 26 years.

Temperature of the Air.

The highest in the month was 79°·9 on the 1st; the lowest was 35°·5 on the 25th.
The range ,, was 44°·4.
The mean ,, of all the highest daily readings was 68°·0, being 0°·4 *higher* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 50°·3, being 1°·2 *higher* than the average of the preceding 26 years.
The mean daily range was 17°·7, being 0°·8 *less* than the average of the preceding 26 years.
The mean for the month was 57°·6, being 0°·5 *higher* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY. A.M.	ELECTRICITY. P.M.	CLOUDS AND WEATHER. A.M.	CLOUDS AND WEATHER. P.M.
Sept. 1	0	0	6, ci, ci.-cu	ci, ci.-cu, ci.-s, v : ci.-s, v
2	0	0	3, ci	10, th.-cl : ci, v : 8, th.-cl, w
3	0 : ss N, ss P, sp, g.-cur	0	10, h.-r, t, l : 10, h.-r	8, ci, ci.-s, cu.-s, r: 10, li.-cl, oc.-shs.-r: 1, l
4	0	0	10	10 : 8, ci, ci.-cu, ci.-s: 6, li.-cl
5	0	0	10, r : r, ci.-cu	7, ci.-cu : 3, ci, ci.-cu, l : 0, d
6	wN : sp, g.-cur	0	6, li.-cl, oc.-shs.-r : vv, h.-shs	3, ci.-cu, ci.-s, oc-shs, r : 6, ci.-cu, w, d
7	0	0	1, ci.-cu	
8	0	0	5, cu.-s, ci.-cu	4, ci.-cu, ci.-s, cu : v, h.-r, ci.-s, ci
9	0	0	6, ci, ci.-cu, ci.-s	5, ci.-cu, w : 10, ci.-cu, ci.-s
10				2, ci, ci.-cu : 10, th.-cl : 10, cu.-s, l, h.-r
11			10, h.-r, l : 5, ci, ci.-cu, cu.-s	ci.-cu, cu.-s, v : ci.-cu, ci.-s, r, v : 0, d
12			10 : 10, th.-r	10, ci.-s, cu.-s, r : 10, sl.-r
			10, r : 10, r	3, ci, ci.-s, ci.-cu : 2, li.-cl
13				
14	0	0	10, f : v, f	ci, ci.-cu, v : 10, ci.-s : 0, d
15	0	0	2, ci	ci.-cu, ci.-s, cu.-s, vv : ci.-s, v, oc.-shs, r
			8, ci, ci.-s, cu.-s	10, ci.-s, cu.-s : 0
16	0	0		
17	w	0 : w	3, ci, ci.-cu, h.-d : ci, ci.-cu, v	ci.-cu, ci.-s, v : 0, d
18	0	0	10, ci.-cu, ci.-s	ci, ci.-cu, cu.-s, vv : ci.-s, th.-cl, vv, h.-r
			10, th.-cl, r : 10, sl.-r	10, glm, w : 9, cu.-s, ci.-cu, w : 10, ci.-cu
19	0	0		
20	0	0	10 : 7, ci, ci.-s, ci.-cu, cu.-s	v : th.-cl, v
21	0	wN : 0	10	5, ci.-cu : mt, v
			4, th.-cl, h, m	10, th.-cl, h, sl.-f: 2, ci : 0, d
22	0	0		
23	0	0	10, r : 10, th.-r, mt, glm	li.-cl : d, h, v, a
24			10, th.-r : 10, w	10, glm : ci, ci.-cu, ci.-s, v, r, w: ci.-s, v
			9, ci.-cu, ci, cu.-s, w	ci, ci.-cu, ci.-s, v: v : 0
25				
26			7, li.-cl, d, f : 10	10 : 8, ci.-cu : 0, f, d
27			0, f, h, d	9, f, h : 10, h : 10, sl.-f
			10	10 : 6, ci, ci.-cu, ci.-s : v
28				
29			6, ci.-cu, ci, h	li.-cl, vv : v : 0
30			10	10 : ci.-s, v
			0, d, w : ci, st.-w	6, ci, ci.-cu, ci.-s : r, v : 0, d

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 66°·4 on the 3rd; and the lowest was 37°·8 on the 24th.

The mean ,, was 51°·6, being 0°·5 *higher* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·382, being 0^{in}·001 *greater* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 4^{grs}·3, being 0^{gr}·1 *greater* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 81 (that of Saturation being represented by 100), being *the same as* the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 535 grains, being 1 grain *less* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·3.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 1·2.

WIND.

The proportions were of N. 5, S. 11, W. 10, E. 4, and Calm 0. The greatest pressure in the month was 16^{lbs}·7 on the square foot on the 18th.

RAIN.

Fell on 12 days in the month, amounting to 2^{in}·92, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·49 *greater* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning from September 10 to 13 and 24 to 30.

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MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Pressure in lbs. on the square foot. Greatest.	Pressure in lbs. on the square foot. Least.	Pressure in lbs. on the square foot. Mean of 24 Obs.	Robinson's. Amount of Horizontal Movement of the Air	Rain Gauges
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
Oct. 1	..	30·260	57·2	42·7	49·1	39·9	113·1	40·4	56·2	55·0	9·2	14·1	5·5	— 4·8	N	NNW : SW	2·7	0·0	0·3	271	0·00
2	..	29·803	59·2	42·1	50·0	45·6	88·9	33·6	55·8	54·7	4·4	10·3	0·8	— 3·8	SW	WSW	6·9	0·0	1·0	378	0·00
3	..	29·754	54·0	37·8	44·6	36·9	99·6	29·5	54·8	52·7	7·7	15·0	1·9	— 9·1	W: WSW: NW	N	2·3	0·0	0·3	370	0·00
4	..	29·971	50·9	33·2	41·2	33·2	103·3	24·0	52·8	49·7	8·0	14·1	6·0	—12·3	N	NNW	2·9	0·1	0·8	284	0·00
5	Greatest Dec. S. Apogee: Fst Qr.	29·909	52·3	30·8	41·3	34·5	106·0	21·6	52·3	49·7	6·8	13·6	1·5	—12·0	WSW : NNW	N by W	1·9	0·0	0·2	239	0·00
6	..	29·777	50·8	31·2	41·8	39·2	64·0	23·8	52·8	50·7	2·6	5·5	0·2	—11·1	SW : SSW	SW : N by W : WSW	0·0	0·0	0·0	210	0·00
7	..	29·449	58·4	40·2	47·2	45·4	78·0	37·2	51·8	49·7	1·8	9·6	0·0	— 5·3	SW	NW: W: WSW	10·0	0·0	0·5	356	0·00
8	..	29·446	53·4	38·9	43·5	37·4	99·3	31·7	51·8	48·7	6·1	12·0	2·5	— 8·6	W: WNW	NW: WNW	5·4	0·0	0·6	287	0·00
9	..	29·640	49·6	32·6	41·5	40·2	75·8	23·5	49·8	48·1	1·3	7·4	0·0	—10·3	W : WSW	SW : SSE	0·6	0·0	0·0	234	0·00
10	..	29·769	54·1	36·0	43·8	39·7	99·1	30·0	48·8	47·7	4·1	11·2	1·0	— 7·8	NE: N	N: N by E	3·7	0·0	0·4	211	0·00
11	..	30·005	48·9	31·2	41·3	40·6	61·2	24·7	48·8	46·7	0·7	4·6	0·0	—10·1	SW	SW	0·0	0·0	0·0	114	0·00
12	In Equator	29·661	55·7	42·5	46·9	45·7	78·6	33·2	48·3	45·2	1·2	5·2	0·0	— 4·3	S: SSE: NE	NE	0·0	0·0	0·0	92	0·00
13	Full	29·437	48·7	39·6	42·9	42·6	48·7	33·0	47·8	43·7	0·3	0·9	0·0	— 8·0	Calm : SW	SW : SE	0·0	0·0	0·0	128	0·00
14	..	29·604	64·8	45·2	54·0	51·9	106·7	38·7	47·8	42·7	2·1	9·7	1·0	+ 3·4	SE	S : SE	0·7	0·0	0·0	156	0·00
15	..	29·657	64·7	52·8	57·9	55·8	80·7	43·6	48·8	45·7	2·1	6·8	0·0	+ 7·6	SE : SSE	S : SE	1·7	0·0	0·1	157	0·00
16	..	29·739	63·0	52·2	55·2	50·0	111·0	50·3	49·8	47·7	5·2	9·7	0·4	+ 5·2	WSW	SW : SSW	2·7	0·0	0·2	365	0·00
17	..	29·602	63·8	49·1	56·0	51·9	93·3	46·2	49·8	47·7	4·1	10·1	1·7	+ 6·2	SSW	SSW	7·5	0·0	1·0	353	0·00
18	Perigee: Greatest Dec. N.	29·605	61·5	46·3	52·8	47·2	99·2	41·6	..	..	5·6	13·5	0·6	+ 3·2	SSW : SW	SSW	0·9	0·0	0·1	232	0·00
19	..	29·547	58·0	41·3	48·4	44·9	99·7	37·0	50·5	49·4	3·5	9·6	0·4	— 0·9	SW : WSW	SW	0·7	0·0	0·0	166	0·00
20	Last Qr.	29·788	55·0	35·8	43·9	42·6	95·7	31·0	51·8	49·7	1·3	8·0	0·0	— 5·2	SW	W: SW	0·0	0·0	0·0	194	0·00
21	..	29·982	58·2	41·9	51·1	48·5	82·0	35·1	51·8	49·7	2·6	6·8	0·0	+ 2·2	S	SSW	8·3	0·0	0·5	340	0·00
22	..	30·076	63·9	56·2	59·0	57·1	75·0	53·2	52·3	50·2	1·9	4·4	0·4	+10·3	SSW	SW : S	1·0	0·0	0·1	153	0·00
23	..	29·844	61·5	48·8	53·9	51·3	108·3	45·8	52·8	50·7	2·6	9·3	0·0	+ 5·4	SE	E : SE	0·3	0·0	0·0	120	0·01
24	..	29·746	58·8	49·3	53·4	50·3	73·3	44·7	..	..	3·1	6·1	0·6	+ 5·2	SE	ESE : E	0·0	0·0	0·0	127	0·00
25	In Equator	30·021	59·8	46·9	51·2	50·1	79·1	40·7	51·8	49·7	1·1	5·3	0·0	+ 3·3	NE	NE : E: S	0·5	0·0	0·0	103	0·00
26	..	29·971	62·1	43·1	51·9	47·0	102·4	37·8	52·3	50·7	4·9	14·1	1·5	+ 4·3	S by W : S	SSW	1·3	0·0	0·1	366	0·00
27	New	29·323	54·6	37·0	45·8	42·6	57·7	32·5	..	..	3·2	8·4	0·7	— 1·5	SSW	SW : WSW	30·0	0·0	1·1	314	0·00
28	..	29·808	49·7	34·1	41·1	35·8	74·8	27·8	52·9	49·8	5·3	12·0	1·7	— 5·9	WSW : WNW	WNW : SW	1·5	0·0	0·1	379	0·00
29	..	29·680	60·8	38·4	51·3	49·5	68·6	32·1	51·8	49·7	1·8	5·3	0·0	+ 4·5	SW	SW	8·0	0·1	1·7	479	0·00
30	..	29·842	57·5	51·5	53·6	52·6	72·0	50·8	51·9	50·7	1·0	3·0	0·4	+ 7·0	WSW	SW	9·0	0·0	0·4	312	0·00
31	..	29·791	60·9	52·9	55·4	50·5	95·6	52·2	52·8	51·2	4·9	9·1	1·9	+ 8·9	SW	SW	3·0	0·0	0·5	357	0·00
Means	..	29·758	57·2	42·0	48·7	45·2	86·8	36·4	51·5	49·2	3·6	8·9	1·0	— 1·4	...	...	..	..	..	Sum 7894	0·00

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The absolute maximum in the month was 30in·306 on the 1st; the first minimum in the month was 29in·687 on the 2nd.
The second maximum ,, was 29in·989 on the 4th; the second minimum ,, was 29in·398 on the 8th.
The third maximum ,, was 29in·737 on the 9th; the third minimum ,, was 29in·454 on the 9th.
The fourth maximum ,, was 30in·081 on the 11th; the fourth minimum ,, was 29in·432 on the 13th.
The fifth maximum ,, was 29in·768 on the 16th; the fifth minimum ,, was 29in·590 on the 17th.
The sixth maximum ,, was 29in·652 on the 18th; the sixth minimum ,, was 29in·536 on the 19th.
The seventh maximum ,, was 30in·092 on the 22nd; the seventh minimum ,, was 29in·702 on the 24th.
The eighth maximum ,, was 30in·060 on the 26th; the absolute minimum ,, was 29in·275 on the 27th.
The ninth maximum ,, was 29in·893 on the 28th; the ninth minimum ,, was 29in·678 on the 29th.
The tenth maximum ,, was 29in·858 on the 30th.
The range in the month was 1in·031.
The mean for the month was 29in·758, being 0in·063 *higher* than the average of the preceding 26 years.

TEMPERATURE OF THE AIR.

The highest in the month was 64°·8 on the 14th; the lowest was 30°·8 on the 5th.
The range ,, was 34°·0.
The mean ,, of all the highest daily readings was 57°·2, being 1°·5 *lower* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 42°·0, being 2°·1 *lower* than the average of the preceding 26 years.
The mean daily range was 15°·2, being 0°·6 *greater* than the average of the preceding 26 years.
The mean for the month was 48°·7, being 1°·9 *lower* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Oct. 1			0	0, h : 0
2			8, ci, ci.-s, ci.-cu, sc, w	10, ci, ci.-s, st.-w : 10, r
3			4, ci, ci.-s, ci.-cu, d	3,ci,ci.-cu,ci.-s: 8,ci.-cu,cu.-s,r: 3, li.-cl, l
4			1, ci, d	ci, ci.-cu, ci.-s, cu.-s, vv: 7, ci.-s, cu.-s, ci.-cu
5			1, ci, d, h : v	ci, ci.-cu, ci.-s, cu.-s, v : th.-cl, v, lu.-ha, d
6			10, ci.-s, glm, sl.-f, th.-r : 10, th.-r	10 : 10, th.-cl, gt.-glm, f
7			10, th.-r : ci, ci.-s, ci.-cu, cu.-s, v, r	ci.-cu, ci.-s, vv : 0, d
8			4, ci.-cu, d : ci, ci.-cu, cu.-s, h, v	th.-cl, r, vv : 0
9			9, li.-cl, h, d : 10, li.-cl	10, li.-cl, h : 10, h.-r : 10, ci.-s, glm
10			6, ci, cu.-s, h, sc	ci, ci.-cu, ci.-s, cu.-s, vv: 0, d
11			10, f	10, r : 10, glm, sl.-f, oc.-r
12			10, sl.-f, r	10 : 4, ci.-cu, cu.-s : f, v
13			10, th.-r, f	10, th.-r, f : 10, f, th.-r
14			7, ci, ci.-cu, ci.-s	ci, ci.-cu, cu, ci.-s, cu.-s, vv: 10, ci.-s, cu.-s, r
15			10, r : 10	9,ci.-cu,ci.-s,cu.-s: v : 10, th.-cl, oc.-r
16	0	0	8, ci, ci.-s, h.-r	6, ci, ci.-cu, cu.-s : 10
17	0	0	3, ci, d, r : vv	li.-cl, v, st.-w : 2, ci, ci.-cu, w : 0, w
18	0	0	0, ci	ci,ci.-cu,cu,cu.-s,vv: v, oc.-r : 0
19	0	0	3, ci	7, ci, ci.-cu, cu.-s : 0
20			4, ci, f, h, h.-d	ci, h, v, cu, cu.-s : 0, d
21			10, ci, ci.-s	10 : 10, oc.-r
22			10 : 10, th.-r	10, th.-r, glm : 10
23			10, sl.-r : ci.-cu, cu.-s, ci.-s, v	2, ci.-cu : 0 : 0, f
24			2, ci, ci.-cu, ci.-s, d	9, th.-cl, h : 10, ci.-cu, ci.-s : th.-cl, vv, l
25			10, f	8,ci,ci.-cu,ci.-s,cu.-s: 10, glm : 1, ci.-s, th.-r
26	0	0	0, h, d	4, ci, ci.-cu, ci.-s : 0
27	0	0	10, glm, st.-w : 10, th.-r	10, h.-r, gt.-glm, st.-w : 0
28	0	0	2, li.-cl, h, h.-fr, r	1, ci, ci.-cu, h : 5, ci.-cu, cu.-s, ci: 0, d
29	0	0	10, sc, r, st.-w : 10, shs.-r, st.-w	10,oc.-r,ci,ci.-cu,cu.-s,sc,v: ci.-s, cu.-s, vv, st.-w
30	0	0	10, ci.-s, r : 10, m.-r	10, r : 10, th.-r, glm
31	0	0	10, r, ci.-s	10, th.-cl : 10 : 10, th.-r

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 58°·0 on the 22nd; and the lowest was 32°·8 on the 5th.

The mean ,, was 45°·2, being 1°·2 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·302, being 0^{in}·015 *less* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 3^{grs}·4, being 0^{grs}·3 *less* the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 88 (that of Saturation being represented by 100), being 1 *greater* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 542 grains, being 3 grains *greater* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·5.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 0·7.

WIND.

The proportions were of N. 5, S. 12, W. 10, E. 4, and Calm 0. The greatest pressure in the month was 30^{lbs}·0 on the square foot on the 27th.

RAIN.

Fell on 21 days in the month, amounting to 2^{in}·14, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·67 *less* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning from October 1 to 15 and 20 to 25.

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MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer with blackened bulb in vacuo, placed on the Grass	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 50 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Pressure in lbs. on the square foot. Greatest.	Pressure in lbs. on the square foot. Least.	Osler's. Mean of 24 Obs. Amount of Horizontal Movement of the Air on each Day.	Robinson's. Rain in Inches, collected in a Gauge 8 inches above the Ground.
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
Nov. 1	Greatest Declination S.	29·775	64·0	40·0	50·3	46·7	104·2	38·0	51·3	49·7	3·6	12·5	0·8	+ 3·9	SW	WSW: NNW: WNW	6·0	0·0	0·6	394	0·04
2	Apogee	30·282	50·7	33·0	41·7	36·6	88·2	27·5	50·2	49·4	5·1	10·2	0·0	— 4·6	WSW: NW	N by W	2·0	0·0	0·2	243	0·00
3	..	30·362	49·8	30·2	40·7	36·1	68·2	24·7	49·3	47·0	4·6	10·5	2·0	— 5·4	SW	WSW	0·7	0·0	0·0	214	0·00
4	First Qr.	30·123	53·5	41·0	47·2	42·6	63·2	35·3	..	..	4·6	9·8	0·0	+ 1·3	WSW	W: WNW: NE	1·9	0·0	0·3	307	0·00
5	..	30·166	48·6	36·0	41·4	35·9	87·0	29·0	48·8	46·7	5·5	8·4	2·2	— 4·3	N	N: N by E	0·8	0·0	0·1	214	0·00
6	..	30·311	48·4	32·2	39·8	37·1	83·7	25·2	47·8	44·7	2·7	7·8	0·3	— 5·7	N	NE: ENE	0·3	0·0	0·0	124	0·00
7	..	30·411	49·7	33·4	40·7	37·5	86·7	27·7	47·8	44·7	3·2	8·8	0·0	— 4·6	SW	WSW: SW	0·0	0·0	0·0	138	0·00
8	In Equator	30·433	50·0	32·6	41·4	39·8	67·0	28·0	46·8	44·7	1·6	6·1	0·0	— 3·6	SW	WSW	0·0	0·0	0·0	218	0·00
9	..	30·441	46·0	36·8	42·3	42·3	48·0	29·8	45·8	44·7	0·0	0·0	0·0	— 2·4	WSW	Calm	0·0	0·0	0·0	90	0·00
10	..	30·350	49·9	39·7	44·7	42·2	55·5	38·7	45·9	43·8	2·5	5·3	0·0	+ 0·3	Calm	NNE: ENE	0·0	0·0	0·0	88	0·00
11	..	30·147	51·5	33·3	42·4	38·9	80·0	32·2	45·8	43·7	3·5	10·2	0·2	— 1·7	Calm	NE: Calm	0·0	0·0	0·0	86	0·00
12	Full	30·022	44·8	33·5	39·6	39·1	65·8	26·2	44·8	43·2	0·5	2·9	0·0	— 4·2	N: NNE	NE	0·0	0·0	0·0	98	0·00
13	..	29·811	48·2	36·2	42·4	37·0	58·7	30·6	45·3	42·7	5·4	10·1	0·0	— 1·1	Calm	SW: ESE	0·0	0·0	0·0	85	0·00
14	Perigee	29·471	54·8	36·8	48·9	47·1	68·0	28·3	45·8	43·7	1·8	3·8	0·0	+ 5·7	SE	SSE	2·7	0·0	0·4	267	0·08
15	Greatest Declination N.	29·511	59·8	48·6	53·5	50·1	86·2	48·0	..	..	3·4	8·4	0·0	+10·6	SE	SE: E: Calm	0·0	0·0	0·0	139	0·00
16	..	29·534	49·0	40·0	43·7	39·5	49·8	39·5	45·3	43·4	4·2	6·4	2·9	+ 1·1	NNE	NE	15·1	0·0	1·7	536	0·02
17	..	29·794	42·3	38·1	39·9	33·6	49·0	34·5	43·8	41·4	6·3	7·8	4·6	— 2·4	NE	NE	27·0	0·6	3·3	664	0·00
18	Last Qr.	30·139	43·0	32·8	39·2	36·5	52·2	27·2	43·8	41·7	2·7	4·4	0·3	— 2·8	NNE	N: N by W	1·7	0·0	0·1	223	0·00
19	..	30·161	46·8	37·6	41·9	37·7	52·2	28·9	43·8	41·7	4·2	5·7	1·0	+ 0·1	NW	NW: WSW: NNW	0·6	0·0	0·0	192	0·00
20	..	30·266	41·7	34·0	37·7	29·4	50·2	25·2	43·7	41·4	8·3	10·1	6·7	— 3·9	NNW	N	4·0	0·0	0·8	367	0·00
21	In Equator	30·348	43·2	35·4	38·5	34·3	57·0	30·0	..	..	4·2	7·0	1·7	— 2·9	N by E	N by W	4·0	0·0	0·7	345	0·00
22	..	30·349	44·7	33·1	39·3	34·6	50·2	27·4	43·4	40·7	4·7	8·6	2·8	— 1·9	NNW	NW	1·3	0·0	0·1	260	0·00
23	..	30·336	46·2	36·3	40·8	36·8	55·4	30·3	43·3	39·8	4·0	7·6	0·7	— 0·3	NNW	N	1·4	0·0	0·2	255	0·00
24	..	30·468	42·3	34·9	38·3	35·6	53·5	29·6	42·8	39·7	2·7	7·1	0·2	— 2·7	N	W: NW	0·0	0·0	0·0	98	0·00
25	..	30·319	40·0	33·6	37·3	33·5	43·0	25·6	41·8	39·7	3·8	4·8	1·5	— 3·6	SW	WSW	0·1	0·0	0·0	202	0·00
26	New	30·017	45·9	39·1	42·6	37·7	55·0	36·7	41·1	39·7	4·9	7·0	3·2	+ 1·7	SW	SW	1·9	0·0	0·2	330	0·01
27	..	30·120	44·7	29·2	34·7	29·1	54·0	22·1	40·8	38·7	5·6	9·0	1·8	— 6·4	NNW	NNW: SW	1·4	0·0	0·1	204	0·00
28	Greatest Declination S.	30·217	41·9	27·5	34·2	29·3	43·0	21·8	40·7	38·7	4·9	8·3	1·0	— 7·1	SW	WSW	0·2	0·0	0·0	203	0·00
29	..	30·163	43·7	29·0	36·6	33·5	46·5	21·9	40·4	38·7	3·1	7·7	1·6	— 5·0	SW	SW: SSW: S	0·0	0·0	0·0	208	0·00
30	Apogee	29·724	47·7	35·6	40·4	36·1	49·9	31·0	..	..	4·3	7·3	0·0	— 1·5	SSE	S: SSW	16·2	0·0	1·0	381	0·27
Means	..	30·119	47·8	35·3	41·4	37·5	62·4	30·0	45·0	42·8	3·9	7·5	1·2	— 1·8	...	...	..	..	..	Sum 7173	Sum 0·42

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 30in·411 on the 3rd; the first minimum in the month was 29in·714 on the 1st.
The second maximum ,, was 30in·469 on the 9th; the second minimum ,, was 30in·097 on the 4th.
The third maximum ,, was 30in·197 on the 19th; the third minimum ,, was 29in·448 on the 14th.
The fourth maximum ,, was 30in·406 on the 21st; the fourth minimum ,, was 30in·133 on the 19th.
The absolute maximum ,, was 30in·493 on the 24th; the fifth minimum ,, was 30in·314 on the 23rd.
The sixth maximum ,, was 30in·232 on the 28th; the sixth minimum ,, was 29in·900 on the 26th.
The lowest reading took place on the 30th at midnight, and was 29in·394, the barometer still decreasing.
The range in the month was 1in·099.
The mean for the month was 30in·119, being 0in·370 *higher* than the average of the preceding 26 years.

TEMPERATURE OF THE AIR.

The highest in the month was 64°·0 on the 1st; the lowest was 27°·5 on the 28th.
The range ,, was 36°·5.
The mean ,, of all the highest daily readings was 47°·8, being 1°·4 *lower* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 35°·3, being 2°·2 *lower* than the average of the preceding 26 years.
The mean daily range was 12°·5, being 0°·8 *greater* than the average of the preceding 26 years.
The mean for the month was 41°·4, being 2°·6 *lower* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Nov. 1	w	o	3, ci, ci.-cu, ci.-s : vv	8,ci,ci.-cu,ci.-s,cu.-s: 10, th.-r, gt.-glm : v
2			o, d	1, ci, ci.-cu : 7, li.-cl : o, sl.-f, h.-fr
3			o, h.-fr, h, sl.-f : ci, sl.-f	5, ci, sl.-f : 10, h
4	o	o	10	10 : 10, f, th.-r, l
5	m	w : o : w	o, d, h.-fr : v	ci, ci.-cu, ci.-s, cu.-s, v: o
6	o	o	8, li.-cl, h, sl.-f	6, ci.-cu, cu.-s : o, d
7	w	m : w	o, f, h	2, ci, f, h : o, h : o, d, f
8	w	m : w	o, h, f, h.-fr	o, h, sl.-f : 1, ci, h, sl.-f : 1,ci,sl.-f,h.-d,lu.-co
9			10, f	10, f : 10, f
10			10, f	10 : 10, ci.-s, cu.-s
11			10, f	8, ci, ci.-cu, ci.-s : ci, v, f, h.-fr
12			10, sl.-f, h.-fr	10 : 10
13			10, f	10 : 10, ci.-cu : o, h.-fr, ms
14			v, sc, f, r, lu.-ha, ms: 10, ci.-s, oc.-r	10 : 10, th.-r : ci.-s, cu.-s, v, r
15			o : 10	9, ci, ci.-cu, ci.-s : 10, ci.-cu, ci.-s
16			10, glm, w, sc, r : 10, r, st.-w	10, st.-w : st.-w, v
17			10	10, oc.-r : 10
18	o	o	10, ci.-s, cu.-s, h.-fr	10 : 10
19	o	o	10, glm	10 : 5, ci.-s, cu.-s, h : o, f, h.-fr
20	o	o	10, ci.-s, w, h.-fr	10, r : 10, glm, w
21	o	o	10, ci.-cu	8, ci, ci.-cu, ci.-s : o
22	o	o	1, ci, ci.-s, h.-fr	9, ci.-s, cu.-s : 10, f : 10, th.-r
23	o	o	10, ci.-s	9, ci.-s : 10, sc, r, glm : v, d, h.-fr.
24	o	o	10, sl.-f, th.-r, f	10, f : 10 : o
25	o	o	10	10 : 10, sl.-f
26	o	o	10, oc.-r	10 : 10, glm, r
27	o	o	o, h, h.-fr	3, ci, h, fr : o, f
28	o	o : w	o, h.-fr	o : 9, ci, ci.-cu : o, h.-fr
29			o, h.-fr	o : 10 : o
30			10, th.-cl, h.-fr	10, ci.-s, oc.-h.-r: 10, oc.-sqs, w, r: 10, h.-sqs, h.-r

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 53°·9 on the 1st; and the lowest was 26°·6 on the 28th.

The mean ,, was 37°·5, being 2°·4 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·225, being 0^{in}·027 *less* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 2^{grs}·6, being 0^{grs}·2 *less* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 87 (that of Saturation being represented by 100), being 1 *less* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 557 grains, being 10 grains *greater* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·9.

OZONE.

The mean amount for the month, on a scale ranging from 0 to 10, was 0·2.

WIND.

The proportions were of N. 11, S. 5, W. 8, E. 4, and Calm 2. The greatest pressure in the month was 16^{lbs}·2 on the square foot on the 30th.

RAIN.

Fell on 5 days in the month, amounting to 0^{in}·42, as measured in the simple cylinder gauge partly sunk below the ground; being 2^{in}·00 *less* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning on November 2 and 3, from 9 to 17, and on 29 and 30.

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MONTH and DAY, 1867.	Phases of the Moon.	Mean Daily Reading of the Barometer (corrected and reduced to 32° Fahrenheit).	Readings of Thermometers. Dry. Highest.	Dry. Lowest.	Dry. Mean Daily Value.	Dew Point. Mean Daily Value.	Highest in the Sun, as shown by a Self-Registering Thermometer, with blackened bulb in vacuo, placed on the Grass.	Lowest on the Grass, as shown by a Self-Registering Minimum Thermometer.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Highest.	In the Water of the Thames, at Greenwich, by Self-Registering Thermometers, read at 9h A.M. Lowest.	Difference between the Dew Point Temperature and Air Temperature. Mean Daily Value.	Difference between the Dew Point Temperature and Air Temperature. Greatest.	Difference between the Dew Point Temperature and Air Temperature. Least.	Difference between the Mean Temperature of the Day and the Mean Temperature of the same Day on an Average of 30 Years.	Wind as deduced from Anemometers. Osler's. General Direction. A.M.	Wind as deduced from Anemometers. Osler's. General Direction. P.M.	Pressure in lbs. on the square foot. Greatest.	Pressure in lbs. on the square foot. Least.	Pressure in lbs. on the square foot. Mean of 24 Obs.	Robinson's Amount of Horizontal Movement of the Air on each Day.	Rain in Inches, collected in a Gauge whose receiving surface is 5 inches above the Ground.
		in.	°	°	°	°	°	°	°	°	°	°	°	°			lbs.	lbs.	lbs.	miles.	in.
Dec. 1	..	28·953	55·2	39·0	49·9	49·3	59·0	39·0	42·9	42·0	0·6	2·5	0·0	+ 7·8	SSW : SW	SSW : WNW	30·0	0·2	2·6	569	0·67
2	..	29·513	39·0	26·1	29·6	15·4	49·2	22·5	39·8	38·7	14·2	17·0	6·5	−12·6	NNW	NNW : N by W	30·0	0·1	3·8	581	0·18
3	..	30·015	37·8	26·8	33·4	30·3	44·0	21·0	38·8	37·7	3·1	5·3	2·7	− 8·9	N by E	N by W	19·5	0·0	1·3	413	0·00
4	First Qr.	30·144	35·1	29·2	32·6	28·9	39·0	22·1	38·3	35·7	3·7	5·9	1·9	− 9·6	NNW : Calm	SW : SSW	0·0	0·0	0·0	146	0·00
5	..	29·664	41·3	29·8	36·4	35·0	49·5	24·6	38·8	36·2	1·4	4·1	0·0	− 5·8	SSW : W	WNW : WSW : NW	1·0	0·0	0·1	262	0·23
6	In Equator	29·694	38·7	32·5	35·4	32·2	44·6	27·0	38·3	35·7	3·2	4·1	2·5	− 6·7	NW : N by W	N	11·5	0·0	1·3	390	0·03
7	..	29·953	35·7	29·3	33·0	28·3	39·0	23·3	37·8	34·7	4·7	6·3	1·8	− 9·0	N	N : N by W	30·0	0·1	2·6	477	0·03
8	..	29·888	35·1	29·5	32·6	30·6	37·9	24·6	35·3	35·2	2·0	4·9	0·0	− 9·1	NNW	SW : SE : E	1·3	0·0	0·1	201	0·20
9	..	30·116	30·8	21·2	25·8	21·1	41·0	15·0	35·8	34·7	4·7	7·0	1·5	−15·5	NE	NNE : SW	0·8	0·0	0·0	49	0·00
10	..	29·885	38·9	22·0	33·2	32·9	39·0	19·7	35·5	34·7	0·3	3·7	0·0	− 7·8	WSW	WSW	1·5	0·0	0·1	264	0·00
11	Full	29·891	48·6	35·3	43·6	42·3	48·6	28·2	37·8	35·7	1·3	5·9	0·0	+ 2·9	W	WNW	1·6	0·0	0·3	288	0·22
12	Greatest Declination N. Perigee.	29·995	50·8	40·5	46·7	41·0	52·0	33·0	37·2	36·6	5·7	7·5	4·6	+ 6·1	NW	WNW : NW	4·3	0·0	0·8	406	0·00
13	..	30·063	46·0	38·9	42·5	38·0	48·0	31·3	36·8	34·7	4·5	6·4	2·3	+ 2·0	W : WNW	WNW : W : WSW	2·3	0·0	0·4	360	0·00
14	..	29·794	49·0	36·7	44·2	43·6	50·2	32·0	37·8	35·2	0·6	3·4	0·0	+ 3·8	WSW : SW	SW	7·3	0·0	1·3	455	0·10
15	..	29·642	53·9	47·6	50·6	49·9	53·9	46·0	36·8	34·7	0·7	1·0	0·2	+10·4	WSW : W	Variable.	20·0	0·0	1·9	457	0·26
16	..	29·650	52·9	48·7	50·9	46·9	58·9	46·2	36·8	33·7	4·0	5·8	2·4	+10·9	WSW	WSW : SW	23·0	0·0	1·3	571	0·00
17	..	29·465	52·2	41·7	47·9	45·3	57·0	41·0	37·8	34·7	2·6	4·4	1·8	+ 8·1	WSW : SW	SW : W : WNW	22·5	0·1	1·5	482	0·00
18	Last Quarter In Equator.	29·361	41·7	31·7	36·5	32·7	47·0	27·3	..	..	3·8	7·4	2·4	− 3·1	WSW : WNW	WNW : NW : WSW	1·7	0·0	0·2	273	0·00
19	..	29·618	39·7	29·8	35·3	31·5	51·0	21·7	35·8	33·7	3·8	8·1	2·5	− 4·1	NNW : W : NW	NW : W : NNW	1·0	0·0	0·1	182	0·06
20	..	29·850	32·9	24·6	27·9	26·4	32·9	18·4	37·8	33·7	1·5	4·1	0·0	−11·2	NNW : Calm	SW : Calm	0·0	0·0	0·0	106	0·00
21	..	29·719	45·7	29·3	38·0	37·0	45·7	27·1	40·8	38·7	1·0	2·3	0·0	− 0·8	SSE	S by E : SW	10·5	0·0	0·9	343	0·18
22	..	29·779	49·9	34·0	43·5	42·6	50·0	30·2	41·2	38·4	0·9	3·8	0·0	+ 5·0	SW	NNW : WSW	2·5	0·0	0·2	268	0·01
23	..	30·053	44·8	29·4	38·4	35·8	49·1	23·8	41·8	38·7	2·6	6·4	0·0	+ 0·3	Calm	SSW : S	1·6	0·0	0·1	216	0·00
24	..	29·988	47·9	33·5	41·4	37·2	57·3	29·5	42·8	39·2	4·2	6·9	3·1	+ 3·6	SSW : S	S : Calm	1·9	0·0	0·2	220	0·00
25	New	30·073	41·6	31·4	37·9	37·2	41·6	26·0	..	..	0·7	1·6	0·0	+ 0·3	Calm	Calm	0·0	0·0	0·0	89	0·00
26	Greatest Declination S.	30·143	39·5	29·7	32·1	32·1	39·5	28·2	..	..	0·0	0·4	0·0	− 5·3	Calm	Calm	0·0	0·0	0·0	66	0·00
27	Apogee	30·218	38·5	29·6	34·2	32·6	49·0	..	..	..	1·6	3·0	1·0	− 3·1	Calm	ENE	1·3	0·0	0·1	176	0·00
28	..	30·098	36·5	30·0	32·6	30·6	39·1	30·0	..	..	2·0	3·7	0·8	− 4·6	ENE : NE	NE : N	0·6	0·0	0·0	158	0·00
29	..	29·978	40·7	27·9	34·2	32·8	44·0	27·4	..	..	1·4	5·5	0·0	− 3·1	N : NW : W	N by E : NNE	0·7	0·0	0·0	162	0·00
30	..	30·182	35·9	31·0	34·0	24·8	44·0	28·5	..	..	9·2	9·9	8·8	− 3·4	NE	NE	4·0	0·0	0·5	363	0·00
31	..	30·086	32·0	27·0	28·9	20·6	41·0	22·7	..	..	8·3	9·9	5·6	− 8·6	NE	E : NNE	1·5	0·0	0·1	199	0·00
Means	..	29·854	42·2	32·1	37·5	34·4	46·5	27·9	38·4	36·2	3·2	5·4	1·7	− 2·3	...	...	..	..	..	Sum 9192	Sum 1·97

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 30in·211 on the 4th; the absolute minimum in the month was 28in·746 on the 1st.
The second maximum ,, was 30in·050 on the 7th; the second minimum ,, was 29in·564 on the 5th.
The third maximum ,, was 30in·154 on the 9th; the third minimum ,, was 29in·788 on the 8th.
The fourth maximum ,, was 30in·077 on the 13th; the fourth minimum ,, was 29in·857 on the 10th.
The fifth maximum ,, was 29in·709 on the 15th; the fifth minimum ,, was 29in·619 on the 15th.
The sixth maximum ,, was 29in·885 on the 20th; the sixth minimum ,, was 29in·346 on the 18th.
The seventh maximum ,, was 30in·095 on the 23rd; the seventh minimum ,, was 29in·660 on the 22nd.
The absolute maximum ,, was 30in·225 on the 27th; the eighth minimum ,, was 29in·975 on the 24th.
The ninth maximum ,, was 30in·193 on the 30th; the ninth minimum .. was 29in·978 on the 29th.
The range in the month was 1in·479.
The mean for the month was 29in·854, being 0in·024 *higher* than the average of the preceding 26 years.

TEMPERATURE OF THE AIR.

The highest in the month was 55°·2 on the 1st; the lowest was 21°·2 on the 9th.
The range ,, was 34°·0.
The mean ,, of all the highest daily readings was 42°·2, being 3°·1 *lower* than the average of the preceding 26 years.
The mean ,, of all the lowest daily readings was 32°·1, being 3°·5 *lower* than the average of the preceding 26 years.
The mean daily range was 10°·1, being 0°·5 *greater* than the average of the preceding 26 years.
The mean for the month was 37°·5, being 3°·0 *lower* than the average of the preceding 26 years.

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MONTH and DAY, 1867.	ELECTRICITY. A.M.	ELECTRICITY. P.M.	CLOUDS AND WEATHER. A.M.	CLOUDS AND WEATHER. P.M.
Dec. 1			10, h.-r, st.-w : 10, sc, st.-w, th.-r	10, sc, th.-r : 10, sc, h.-r, st.-w
2			2, ci, h, ci.-cu, r, h.-g	10, sn, w : 7, li.-cl, w, sn : 3, ci.-cu, w
3			6, ci, ci.-cu, ci.-s, sc, sn : vv, li.-sc	ci.-s, sc, vv, sn, sl : 2, li.-cl
4	o	o	10. h.-fr, f	10 : 10,ci,ci.-cu,ci.-s,f: o
5	o	o	10, r, f : v, ci.-s, ci.-cu, sl.-r	v : o, h : li.-cl, sc, sl.-f, fr, th.-r,v
6	o	w : o : w	10, sn	oc.-r, sn, v : ci.-cu,ci.-s,sc,r,sl.-sn,vv,st.-w
7			8, ci, ci.-cu, sn, st.-w : 10, sn, st.-w	10, sn : 6,ci,ci.-cu,ci.-s,sc,sn:ci, ci.-cu, v, lu.-co
8			10, m.-r	10, sl, sl.-sn, glm : 10, sn
9			8, ci, ci.-s, cu.-s, h.-fr	ci,ci.-cu,ci.-s,v: o, lu.-co, lu.-ha: ci, ci.-s, v : o
10	o	w : o : w	10, sl.-f, m.-r : 10	2, ci, h, f :8,ci.-s,cu.-s,sc,th.-r,f:10,lu.-co,h
11	o	w : o	7, ci.-cu, sc, f, h	10, ci.-s, cu.-s, sl.-f : 10
12	o	o	10, sc : v	ci, ci.-cu, v : o, lu.-co
13	o	o	4, ci	ci,ci.-cu,ci.-s,cu.-s,v,f: 10, ci.-cu, cu.-s, r
14	o	o	10, oc.-m.-r	10, sc, r : 10, oc.-r, w
15	o	o	10, th.-r, sc, st.-w	10, th.-r, sc : 10, th.-r
16	o	o	8, ci.-s, sc, glm	9, ci, ci.-s : 10, sc, glm : 10, glm, sc, w
17	o	o : w	10, sc, glm : 10, th.-r	7, ci, ci.-s, cu.-s, sc, th.-r: 10, oc.-th.-r
18	o	o	3, li.-cl, h	4, ci, ci.-s, h : h, v, h.-fr
19	o	o	10, sl.-f, glm	10, li.-cl, f : 10, r, sn : 10, f, glm
20	o	o	3, li.-cl, h, f, h.-fr	5, ci, ci.-s, h : o, h, f
21	o	o	10, sc, r : 10, h.-r	10, h.-r, w : 10, sc, w : 10, sc.-r
22			10, sc, glm, th.-r, f	10, sc, sl.-f : o, h.-fr
23			4, h.-fr	5, ci, ci.-cu, ci.-s, h: 10, ci.-s : 10, th.-cl
24			10, ci.-s, cu.-s, ci.-cu	8, ci.-cu, ci.-s, cu.-s : o
25			10, th.-f	10, f, m.-r : 10, th.-f, oc.-th.-r
26			10, th.-f, h.-fr	10, th.-f : 10, f
27			10, sl.-f	ci, ci.-cu, ci.-s, v, : 10
28	o	o	10	10 : 10
29	o	o	10, f	10, ci, ci.-cu : 10 : o
30	o	o	10, ci, ci.-s	10 : 10
31	o	o	2, ci	ci, ci.-cu, v : 7, ci, ci.-s, sn : 10

HUMIDITY OF THE AIR.

Temperature of the Dew Point.

The highest in the month was 50°·8 on the 15th; and the lowest was 10°·8 on the 2nd.

The mean ,, was 34°·4, being 2°·8 *lower* than the average of the preceding 26 years.

Elastic Force of Vapour.—The mean for the month was 0^{in}·199, being 0^{in}·025 *less* than the average of the preceding 26 years.

Weight of Vapour in a Cubic Foot of Air.—The mean for the month was 2^{grs}·3, being 0^{grs}·3 *less* than the average of the preceding 26 years.

Degree of Humidity.—The mean for the month was 89 (that of Saturation being represented by 100), being 1 *greater* than the average of the preceding 26 years.

Weight of a Cubic Foot of Air.—The mean for the month was 556 grains, being 4 grains *greater* than the average of the preceding 26 years.

CLOUDS.

The mean amount for the month, a clear sky being represented by o and a cloudy sky by 10, was 7·9.

OZONE.

The mean amount for the month, on a scale ranging from o to 10, was 0·3.

WIND.

The proportions were of N. 9, S. 6, W. 10, E. 3, and Calm 3. The greatest pressure in the month was 30^{lbs}·0 on the square foot on the 1st, 2nd, and 7th.

RAIN.

Fell on 12 days in the month, amounting to 1^{in}·97, as measured in the simple cylinder gauge partly sunk below the ground; being 0^{in}·10 *greater* than the average fall of the preceding 52 years.

ELECTRICITY.—The insulating lamp was not burning from December 1 to 3, 7 to 9, and 22 to 27.

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The following table contains the highest and lowest readings of the Barometer, reduced to 32° Fahrenheit, extracted from the photographic records. The readings are accurate; but the times are liable to great uncertainty, as the barometer frequently remains at its highest or lowest point through several hours. The time given is the middle of the stationary period. Where the symbol : follows the time, it denotes that the quicksilver has been sensibly stationary through a period of more than one hour.

MAXIMA.			MINIMA.			MAXIMA.			MINIMA.		
Approximate Mean Solar Time, 1867.		Reading.	Approximate Mean Solar Time, 1867.		Reading.	Approximate Mean Solar Time, 1867.		Reading.	Approximate Mean Solar Time, 1867.		Reading.
	d h m	in.		d h m	in.		d h m	in.		d h m	in.
January	4. 14. 40	29·935	January	1. 19. 29	28·889	April	0. 22. 13:	30·328	March	30. 6. 0:	29·546
	8. 10. 45:	28·986		7. 19. 21	28·535		2. 19. 58:	30·104	April	2. 2. 45	29·961
	11. 15. 31	29·621		9. 13. 30:	28·694		4. 22. 34:	29·954		4. 2. 16	29·644
	14. 13. 10:	29·789		12. 3. 45:	29·380		9. 21. 9	29·806		8. 6. 37	29·142
	19. 12. 30:	29·769		17. 16. 0:	29·310		11. 23. 28	30·058		10. 16. 30	29·285
	21. 23. 4	29·935		21. 2. 58	29·704		15. 21. 0	29·588		14. 3. 59	29·149
	22. 23. 38	29·596		22. 17. 47:	29·532		17. 12. 15	29·812		16. 3. 0	29·487
	26. 0. 10	29·991		24. 17. 34	29·252		18. 21. 41	29·488		18. 16. 28	29·422
	27. 6. 38	29·880		26. 17. 40	29·709		22. 0. 30	29·671		20. 9. 0	28·895
	28. 19. 25:	29·904		28. 3. 41	29·668		25. 12. 41	29·730		24. 9. 0	29·463
	29. 21. 35	29·729		29. 15. 10	29·620		28. 22. 52	29·742		27. 3. 20	29·345
	31. 6. 39:	30·078		30. 7. 39	29·253	May	2. 20. 0	30·000		29. 23. 30	29·532
February	2. 18. 10:	30·360		31. 19. 0	29·920		7. 9. 12	29·871	May	6. 4. 11	29·760
	4. 13. 5:	29·419	February	4. 5. 23:	29·310		8. 21. 0	29·803		8. 3. 0	29·695
	7. 7. 25:	29·629		5. 15. 18	28·640		11. 8. 50	29·483		10. 18. 23	29·262
	9. 9. 10	29·914		7. 19. 20	29·196		16. 23. 0	29·983		12. 5. 59	29·211
	12. 23. 20	30·258		10. 13. 19	29·570		22. 12. 33	29·920		20. 16. 12	29·379
	18. 10. 4:	30·347		15. 14. 54:	29·620		24. 9. 21	30·003		22. 21. 0	29·846
	20. 16. 10:	30·397		19. 4. 27:	30·180		28. 19. 33:	29·806		26. 15. 54:	29·421
	22. 23. 30	30·360		22. 3. 47	30·240		30. 22. 35	29·973		29. 4. 55	29·703
	24. 22. 0	30·085		24. 5. 9	29·983	June	4. 11. 5	29·860	June	2. 18. 12	29·524
March	1. 23. 50	30·618		25. 17. 33:	29·805		10. 20. 29	30·150		6. 17. 33	29·541
	12. 19. 19:	29·810	March	9. 20. 10:	29·010		17. 10. 39:	30·011		14. 3. 50	29·659
	16. 16. 30:	29·879		14. 2. 50:	29·380		21. 20. 30:	30·023		19. 5. 20	29·820
	21. 0. 59	29·727		19. 4. 28	29·144		26. 21. 30:	30·411		23. 6. 30	29·800
	22. 18. 33:	29·663		21. 23. 15	29·500	July	2. 23. 45	29·885	July	2. 0. 0	29·525
	24. 21. 23:	29·621		23. 14. 27:	29·299		7. 11. 13	30·156		4. 5. 29	29·711
	29. 21. 10	29·652		27. 5. 49:	29·170		14. 9. 0	29·656		13. 18. 31	29·550

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MAXIMA.			MINIMA.			MAXIMA.			MINIMA.		
Approximate Mean Solar Time, 1867.		Reading.	Approximate Mean Solar Time, 1867.		Reading.	Approximate Mean Solar Time, 1867.		Reading.	Approximate Mean Solar Time, 1867.		Reading.
	d h m	in.		d h m	in.		d h m	in.		d h m	in.
July	17. 8. 28	29·622	July	15. 9. 0	29·256	October	10. 18. 40:	30·081	October	9. 12. 58	29·382
	19. 22. 58	29·693		18. 14. 48	29·363		15. 22. 48	29·780		13. 3. 39	29·403
	22. 3. 47	29·575		21. 7. 28	29·505		17. 21. 40	29·660		16. 14. 30	29·581
	24. 21. 0	29·655		23. 6. 36	29·466		21. 23. 45	30·102		18. 19. 0	29·536
	27. 22. 55	29·965		25. 21. 19	29·420		25. 13. 37	30·067		23. 16. 30:	29·682
August	3. 22. 18	29·933	August	1. 6. 0	29·801		28. 7. 48	29·904		27. 1. 9	29·213
	10. 23. 30:	30·022		7. 21. 0	29·566		30. 9. 19	29·870		29. 1. 41	29·653
	18. 10. 30:	29·972		15. 13. 25	29·472	November	2. 20. 30	30·428	November	1. 1. 45	29·685
	23. 21. 0	29·953		19. 18. 43	29·708		8. 22. 20	30·469		4. 3. 47	30·080
	28. 21. 0:	30·041		26. 5. 55	29·802		18. 21. 0	30·197		14. 6. 50	29·423
September	2. 10. 21	29·985		31. 17. 6	29·655		21. 13. 45:	30·410		19. 2. 50	30·132
	5. 8. 0	29·733	September	4. 5. 0	29·662		23. 23. 0	30·500		22. 21. 0	30·314
	7. 12. 12:	29·925		6. 9. 9	29·605		27. 23. 30	30·245		26. 11. 20:	29·888
	10. 13. 20:	29·838		9. 12. 44	29·579	December	3. 22. 48	30·219	December	1. 7. 9	28·685
	13. 21. 0	29·907		11. 17. 0	29·593		7. 9. 0	30·050		5. 16. 20:	29·540
	17. 21. 0	30·211		14. 16. 0	29·690		9. 9. 5	30·158		8. 8. 30	29·788
	20. 11. 48	30·054		19. 16. 48	29·962		13. 8. 10	30·088		10. 8. 40:	29·857
	22. 8. 0	29·914		21. 20. 33	29·744		15. 13. 3	29·730		14. 15. 30	29·475
	24. 21. 0	30·332		23. 5. 27	29·754		20. 7. 30	29·900		17. 20. 22	29·346
October	1. 0. 0	30·306		30. 5. 30	29·844		22. 22. 5:	30·130		21. 19. 30:	29·647
	4. 0. 4	29·989	October	2. 9. 0	29·687		26. 22. 35	30·248		24. 3. 48	29·968
	8. 21. 57	29·760		7. 16. 15	29·358		29. 23. 36	30·220		29. 4. 0:	29·953

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(I.)—Reading of a Thermometer whose bulb is sunk to the depth of 25·6 feet (24 French feet) below the surface of the soil, at Noon on every Day, except Sundays, Good Friday, and Christmas Day.

Days of the Month, 1867.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	52·42	51·84	51·02	50·29	49·69	49·48	49·75	50·35	*S*	51·95	52·59	*S*
2	52·43	51·84	50·98	50·28	49·68	*S*	49·74	50·37	51·26	51·98	52·56	52·61
3	52·36	*S*	*S*	50·21	49·67	49·47	49·76	50·42	51·26	51·99	*S*	52·63
4	52·33	51·76	50·95	50·22	49·66	49·47	49·78	*S*	51·30	52·02	52·58	52·60
5	52·36	51·75	50·90	50·22	*S*	49·47	49·80	50·47	51·31	52·03	52·58	52·63
6	*S*	51·70	50·87	50·18	49·67	49·48	49·82	50·47	51·33	*S*	52·58	52·61
7	52·38	51·68	50·83	*S*	49·62	49·50	*S*	50·50	51·36	52·09	52·61	52·60
8	52·36	51·67	50·78	50·15	49·63	49·48	49·84	50·55	*S*	52·11	52·62	*S*
9	52·35	51·64	50·78	50·15	49·63	*S*	49·87	50·58	51·43	52·13	52·64	52·57
10	52·30	*S*	*S*	50·10	49·62	49·53	49·90	50·63	51·43	52·15	*S*	52·58
11	52·28	51·56	50·73	50·15	49·58	49·55	49·92	*S*	51·43	52·17	52·63	52·61
12	52·24	51·57	50·71	50·05	*S*	49·56	49·92	50·70	51·50	52·21	52·63	52·62
13	*S*	51·51	50·66	50·05	49·52	49·53	49·94	50·73	51·52	*S*	52·64	52·59
14	52·17	51·48	50·72	*S*	49·53	49·53	*S*	50·76	51·56	52·23	52·65	52·52
15	52·18	51·46	50·68	50·00	49·53	49·54	49·93	50·78	*S*	52·28	52·68	*S*
16	52·16	51·46	50·62	49·97	49·52	*S*	49·99	50·78	51·58	52·32	52·64	52·58
17	52·12	*S*	*S*	49·96	49·49	49·56	50·03	50·81	51·62	52·34	*S*	52·58
18	52·09	51·35	50·54	49·97	49·52	49·57	50·04	*S*	51·64	52·36	52·64	52·53
19	52·10	51·34	50·55	Good Friday.	*S*	49·58	50·05	50·88	51·67	52·36	52·66	52·50
20	*S*	51·32	50·52	49·89	49·48	49·58	50·08	50·90	51·70	*S*	52·64	52·55
21	52·04	51·28	50·50	*S*	49·46	49·60	*S*	50·93	51·71	52·40	52·67	52·49
22	52·00	51·26	50·47	49·87	49·46	49·61	50·13	50·96	*S*	52·45	52·66	*S*
23	52·05	51·23	50·50	49·86	49·44	*S*	50·14	51·00	51·77	52·47	52·67	52·46
24	52·07	*S*	*S*	49·82	49·47	49·64	50·18	51·02	51·79	52·47	*S*	52·50
25	52·04	51·15	50·44	49·79	49·45	49·64	50·20	*S*	51·78	52·47	52·62	Christmas Day
26	51·97	51·10	50·43	49·78	*S*	49·67	50·18	51·05	51·82	52·50	52·66	52·58
27	*S*	51·07	50·40	49·76	49·46	49·69	50·23	51·06	51·87	*S*	52·64	52·40
28	51·97	51·04	50·34	*S*	49·46	49·70	*S*	51·11	51·91	52·47	52·63	52·40
29	51·92		50·35	49·74	49·48	49·70	50·28	51·14	*S*	52·48	52·65	*S*
30	51·91		50·33	49·71	49·50	*S*	50·32	51·16	51·95	52·54	52·66	52·34
31	51·87		*S*		49·47		50·35	51·26		52·57		52·30
Means.	52·17	51·46	50·64	50·01	49·54	49·57	50·01	50·79	51·58	52·28	52·63	52·54

(II.)—Reading of a Thermometer whose bulb is sunk to the depth of 12·8 feet (12 French feet) below the surface of the soil, at the same times.

Days of the Month, 1867.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	51·03	48·41	47·75	46·85	47·42	49·54	51·81	54·07	*S*	56·30	55·00	*S*
2	50·95	48·32	47·74	46·81	47·48	*S*	51·82	54·12	55·61	56·28	54·85	52·86
3	50·83	*S*	*S*	46·85	47·54	49·60	51·90	54·20	55·60	56·24	*S*	52·80
4	50·77	48·15	47·80	46·76	47·60	49·64	52·01	*S*	55·68	56·20	54·80	52·67
5	50·80	48·14	47·78	46·76	*S*	49·67	52·08	54·30	55·70	56·20	54·72	52·65
6	*S*	48·05	47·79	46·74	47·75	49·76	52·17	54·28	55·73	*S*	54·68	52·53
7	50·73	48·02	47·78	*S*	47·81	49·81	*S*	54·33	55·80	56·16	54·66	52·45
8	50·65	47·98	47·77	46·75	47·81	49·87	52·35	54·41	*S*	56·11	54·58	*S*
9	50·56	47·97	47·76	46·77	47·90	*S*	52·45	54·45	55·90	56·09	54·53	52·22
10	50·38	*S*	*S*	46·74	47·97	50·04	52·55	54·51	55·93	56·07	*S*	52·17
11	50·27	47·86	47·74	46·77	48·01	50·15	52·62	*S*	55·93	56·00	54·45	52·09
12	50·16	47·91	47·72	46·75	*S*	50·22	52·68	54·62	56·05	55·98	54·37	52·04

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(II.)—Reading of a Thermometer whose bulb is sunk to the depth of 12·8 feet (12 French feet) below the surface of the soil, at the same times—*concluded.*

Days of the Month, 1867.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
13	*S*	47·83	47·65	46·81	48·07	50·25	52·76	54·67	56·07	*S*	54·33	51·90
14	49·92	47·80	47·65	*S*	48·17	50·30	*S*	54·72	56·12	55·94	54·28	51·79
15	49·91	47·81	47·60	46·87	48·27	50·40	52·90	54·59	*S*	55·88	54·25	*S*
16	49·83	47·81	47·60	46·87	48·35	*S*	53·00	54·65	56·14	55·84	54·12	51·56
17	49·72	*S*	*S*	46·75	48·44	50·57	53·10	54·71	56·17	55·77	*S*	51·51
18	49·63	47·74	47·50	46·98	48·58	50·69	53·10	*S*	56·24	55·70	53·96	51·31
19	49·60	47·76	47·47	Good Friday.	*S*	50·77	53·23	54·83	56·27	55·61	53·92	51·18
20	*S*	47·74	47·40	47·00	48·75	50·83	53·32	54·83	56·28	*S*	53·80	51·08
21	49·40	47·73	47·38	*S*	48·81	50·93	*S*	54·91	56·30	55·48	53·76	51·05
22	49·28	47·75	47·33	47·06	48·90	51·02	53·47	54·94	*S*	55·47	53·69	*S*
23	49·30	47·73	47·33	47·15	48·96	*S*	53·52	55·05	56·32	55·41	53·65	50·89
24	49·22	*S*	*S*	47·12	49·11	51·22	53·61	55·10	56·32	55·32	*S*	50·84
25	49·13	47·74	47·18	47·15	49·13	51·28	53·67	*S*	56·29	55·44	53·45	Christmas Day
26	48·97	47·70	47·14	47·20	*S*	51·37	53·65	55·16	56·29	55·24	53·40	50·57
27	*S*	47·75	47·15	47·24	49·28	51·51	53·82	55·18	56·35	*S*	53·32	50·50
28	48·85	47·74	47·00	*S*	49·35	51·55	*S*	55·37	56·38	55·04	53·20	50·50
29	48·69		46·95	47·35	49·43	51·61	53·93	55·35	*S*	55·04	53·18	*S*
30	48·60		46·91	47·42	49·52	*S*	54·03	55·38	56·47	55·07	53·11	50·30
31	48·51		*S*		49·50		54·10	55·51		55·00		50·20
Means.	49·84	47·89	47·50	46·94	48·44	50·50	52·95	54·75	56·08	55·74	54·08	51·59

(III.)—Reading of a Thermometer whose bulb is sunk to the depth of 6·4 feet (6 French feet) below the surface of the soil, at the same times.

Days of the Month, 1867.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	48·75	45·03	47·18	45·38	48·92	51·93	56·38	58·26	*S*	58·28	54·96	*S*
2	48·64	45·20	47·10	45·39	49·00	*S*	56·44	58·18	60·03	58·23	54·82	50·32
3	48·42	*S*	*S*	45·50	49·08	52·33	56·57	58·20	60·00	58·10	*S*	50·09
4	48·27	45·46	47·00	45·56	49·20	52·62	56·77	*S*	60·05	57·97	54·76	49·94
5	48·12	45·62	46·80	45·70	*S*	52·82	56·93	58·10	60·15	57·84	54·62	49·89
6	*S*	45·62	46·72	45·82	49·51	53·11	57·08	58·02	60·20	*S*	54·48	49·65
7	47·55	45·70	46·61	*S*	49·72	53·27	*S*	58·04	60·29	57·50	54·33	49·45
8	47·00	45·70	46·47	46·20	49·80	53·44	57·26	58·08	*S*	57·18	54·13	*S*
9	46·75	45·77	46·36	46·40	50·22	*S*	57·40	58·08	60·31	56·95	53·96	49·00
10	46·54	*S*	*S*	46·54	50·42	53·76	57·49	58·12	60·27	56·76	*S*	48·80
11	46·31	45·78	46·13	46·71	50·70	53·94	57·54	*S*	60·22	56·51	53·50	48·57
12	46·46	45·90	46·05	46·70	*S*	54·11	57·57	58·28	60·21	56·32	53·31	48·40
13	*S*	45·94	45·88	46·90	51·22	54·18	57·64	58·35	60·22	*S*	53·17	48·19
14	46·44	46·04	45·85	*S*	51·55	54·38	*S*	58·50	60·18	55·95	53·02	48·03
15	46·40	46·19	45·71	47·03	51·72	54·61	57·78	58·42	*S*	55·77	52·88	*S*
16	46·27	46·30	45·60	47·10	51·84	*S*	57·90	58·62	60·03	55·65	52·70	47·60
17	46·06	*S*	*S*	47·20	51·92	55·01	58·00	58·86	59·93	55·54	*S*	47·87
18	45·91	46·39	45·22	47·29	51·95	55·12	57·94	*S*	59·91	55·50	52·57	47·70
19	45·73	46·53	45·15	Good Friday.	*S*	55·16	58·00	59·20	59·80	55·47	52·52	47·90
20	*S*	46·65	44·88	47·46	51·86	55·15	58·04	59·22	59·67	*S*	52·34	48·04
21	45·39	46·71	44·78	*S*	51·80	55·18	*S*	59·39	59·52	55·40	52·28	48·05
22	45·18	46·85	44·68	47·81	51·86	55·24	58·10	59·49	*S*	55·43	52·10	*S*
23	45·10	46·94	44·60	48·03	51·86	*S*	58·07	59·60	59·36	55·40	51·95	47·91
24	44·87	*S*	*S*	48·10	52·00	55·40	58·16	59·68	59·23	55·27	*S*	47·81
25	44·75	47·09	44·38	48·25	51·89	55·47	58·21	*S*	59·08	55·23	51·50	Christmas Day
26	44·58	47·10	44·46	48·36	*S*	55·61	58·72	59·73	58·99	55·31	51·34	47·58

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(VI.)—Reading of a Thermometer within the case covering the deep-sunk Thermometers, whose bulb is placed on a level with their scales, at the same times—*concluded.*

Days of the Month, 1867.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
16	34·0	55·2	38·5	49·0	54·0	*S*	65·6	66·2	61·0	60·9	46·4	52·0
17	30·5	*S*	*S*	53·5	55·4	60·6	67·4	69·3	58·9	60·8	*S*	51·4
18	29·3	45·6	33·8	61·5	62·5	67·3	62·5	*S*	64·1	59·8	42·7	40·0
19	32·5	47·6	35·0	GoodFriday.	*S*	69·0	63·3	76·5	64·7	56·9	44·1	38·3
20	*S*	51·8	37·2	56·3	64·0	66·3	68·5	69·5	62·4	*S*	40·0	28·7
21	29·0	49·8	40·5	*S*	49·0	60·2	*S*	72·1	60·8	56·7	41·4	37·6
22	24·7	48·6	37·6	55·4	48·6	64·0	69·7	72·4	*S*	62·0	41·2	*S*
23	47·3	49·2	52·0	62·1	49·4	*S*	67·6	73·1	60·4	62·2	44·8	41·0
24	52·1	*S*	*S*	59·1	53·3	67·3	70·6	73·7	58·7	59·4	*S*	45·4
25	46·0	48·2	51·8	50·5	55·0	70·3	68·7	*S*	55·0	54·6	39·0	ChristmasDay
26	41·0	42·4	55·4	50·8	*S*	68·1	59·2	68·9	52·5	60·5	45·0	33·3
27	*S*	40·5	51·8	56·1	59·1	74·3	57·0	63·3	61·1	*S*	41·0	36·6
28	50·8	42·3	50·0	*S*	62·2	69·9	*S*	65·2	64·7	46·1	39·5	35·3
29	48·0		47·6	56·3	72·2	70·3	62·0	71·5	*S*	56·0	41·3	*S*
30	50·0		46·8	55·5	76·7	*S*	64·1	69·5	65·7	56·2	41·2	35·7
31	44·5		*S*		67·0		68·3	75·7		58·1		33·2
Means.	37·2	47·8	41·6	54·4	61·9	66·9	67·4	69·5	64·2	55·7	46·1	38·8

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WEEKLY MEANS of READINGS of THERMOMETERS.

1867. Period.			Thermometers sunk in the ground. Bulb 24 French Feet deep.	Bulb 12 French Feet deep.	Bulb 6 French Feet deep.	Bulb 3 French Feet deep.	Bulb 1 Inch deep.	Thermometer inclosed in the box which covers the scales of the deep-sunk Thermometers, and placed on a level with their scales.
	d		°	°	°	°	°	°
January	1 to January	7	52·38	50·85	48·29	43·11	34·7	31·2
	8 to	14	52·28	50·32	46·58	42·04	39·5	37·8
	15 to	21	52·11	49·68	45·96	40·11	33·6	31·0
	22 to	28	52·02	49·12	44·85	(40·11)	41·6	43·6
	29 to February	4	51·86	48·45	45·00	42·93	45·5	47·9
February	5 to	11	51·67	48·00	45·70	43·39	44·9	47·3
	12 to	18	51·47	47·82	46·13	44·59	47·2	49·6
	19 to	25	51·26	47·74	46·79	45·76	47·8	49·2
	26 to March	4	51·03	47·75	47·12	44·99	42·1	41·1
March	5 to	11	50·82	47·77	46·51	42·99	39·9	39·8
	12 to	18	50·65	47·62	45·72	41·67	37·0	36·2
	19 to	25	50·50	47·35	44·74	40·49	40·4	42·3
	26 to April	1	50·36	47·00	44·89	43·38	46·0	50·8
April	2 to	8	50·21	46·78	45·70	44·90	49·8	55·0
	9 to	15	50·08	46·78	46·71	46·35	47·9	51·9
	16 to	22	49·93	46·93	47·37	47·36	51·1	55·1
	23 to	29	49·79	47·20	48·34	48·88	51·7	55·8
	30 to May	6	49·68	47·54	49·09	49·82	55·1	62·9
May	7 to	13	49·60	47·93	50·35	53·56	61·5	70·1
	14 to	20	49·51	48·43	51·81	53·21	52·8	56·1
	21 to	27	49·46	49·03	51·85	52·06	50·7	52·4
	28 to June	3	49·48	49·49	51·85	53·32	60·5	68·8
June	4 to	10	49·49	49·80	53·17	55·93	59·6	64·4
	11 to	17	49·54	50·31	54·37	57·79	62·6	67·4
	18 to	24	49·60	50·91	55·21	57·36	60·7	65·7
	25 to July	1	49·69	51·52	55·86	59·06	63·5	71·6
July	2 to	8	49·79	52·06	56·84	60·38	64·1	68·8
	9 to	15	49·91	52·66	57·57	60·59	64·0	69·4
	16 to	22	50·05	53·20	58·00	60·28	61·6	66·2
	23 to	29	50·20	53·70	58·40	60·52	60·9	64·2
	30 to August	5	50·38	54·14	58·27	59·24	59·4	63·7
August	6 to	12	50·57	54·43	58·10	59·45	62·6	68·1
	13 to	19	50·79	54·69	58·66	61·72	66·9	73·9
	20 to	26	50·98	55·00	59·52	62·51	65·8	71·6
	27 to September	2	51·16	55·40	59·95	62·35	64·5	70·1
September	3 to	9	51·33	55·74	60·17	62·59	64·4	68·3
	10 to	16	51·50	56·04	60·19	61·48	62·1	65·1
	17 to	23	51·68	56·26	59·70	59·73	58·5	61·9
	24 to	30	51·85	56·35	58·92	58·07	55·8	59·6
October	1 to October	7	52·01	56·23	57·99	56·35	51·7	53·7
	8 to	14	52·17	56·03	56·61	53·39	49·3	51·6
	15 to	21	52·34	55·71	55·55	53·58	54·8	59·4
	22 to	28	52·47	55·32	55·31	53·99	54·3	57·5
	29 to November	4	52·55	54·96	55·00	53·01	52·4	55·8
November	5 to	11	52·61	54·60	54·17	50·78	46·1	47·8
	12 to	18	52·65	54·22	52·94	49·45	47·0	48·2
	19 to	25	52·65	53·71	52·12	48·01	42·8	41·8
	26 to December	2	52·64	53·18	50·91	46·22	40·4	39·8
December	3 to	9	52·61	52·55	49·67	44·37	37·5	35·2
	10 to	16	52·58	51·93	48·27	42·82	42·7	45·0
	17 to	23	52·52	51·17	47·91	44·54	41·0	39·5
	24 to	31	52·42	50·49	47·42	42·99	38·7	36·6

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AMOUNT OF RAIN COLLECTED IN EACH MONTH OF THE YEAR 1867.

1867, MONTH.	Monthly Amount of Rain collected in each Gauge.							
	Self-registering Gauge of Osler's Anemometer.	Second Gauge at Osler's Anemometer.	On the Roof of the Octagon Room.	On the Roof of the Library.	On the Roof of the Photographic Thermometer Shed.	Crosley's.	Cylinder partly sunk in the Ground read daily.	Cylinder partly sunk in the Ground read Monthly.
	in.	in.	in.	in.	in.	in.	in.	in.
January	1·33	1·37	1·70	1·54	2·34	2·40	2·79	2·80
February	0·72	0·69	0·94	0·86	1·14	1·20	1·22	1·21
March	1·41	1·46	1·63	2·17	2·16	2·08	2·28	2·30
April	0·99	0·90	1·51	1·34	1·98	2·11	2·16	2·10
May	1·78	1·79	2·03	2·06	2·16	2·09	2·34	2·20
June	1·20	1·23	1·42	1·45	1·60	1·62	1·77	1·51
July	3·39	3·45	4·35	4·58	5·28	5·24	5·81	5·30
August	1·98	1·94	2·20	2·04	2·40	2·41	2·64	2·50
September	2·09	2·15	2·38	2·26	2·57	2·55	2·92	2·61
October	1·21	1·19	1·46	1·47	1·68	1·69	2·14	1·93
November	0·21	0·23	0·29	0·23	0·41	0·40	0·42	0·42
December	0·72	0·75	1·13	1·09	1·43	1·42	1·97	1·70
Sums	17·03	17·15	21·04	21·09	25·15	25·21	28·46	26·58

The heights of the receiving surfaces are as follows:

	Above the Mean Level of the Sea. Ft.	In.		Above the Ground. Ft.	In.
The Two Gauges at Osler's Anemometer	205	6	.....	50	8
Gauge on the Roof of the Octagon Room	193	2½	.....	38	4½
Gauge on the Roof of the Library	177	2	.....	22	4
Gauge on the Roof of the Photographic Thermometer Shed	164	10	.....	10	0
Crosley's Gauge	156	6	.....	1	8
The Two Cylinder Gauges partly sunk in the Ground	155	3	.....	0	5

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ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS

OF

LUMINOUS METEORS.

1867.

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Month and Day, 1867.	Greenwich Mean Solar Time.	Observer.	Apparent Size of Meteor in Star-Magnitudes.	Colour of Meteor.	Duration of Meteor in Seconds of Time.	Appearance and Duration of Train.	Length of Meteor's Path in Degrees.	Number for Reference.
	h m s						°	
February 4	8. 33. 0	H.	1	Bluish	> 1	Faint	15	1
,,	10. 52. 0	N.	4	Blue	0·5	None	5	2
,,	10. 53. 0	N.	2	Blue	0·9	Faint	6	3
,,	11. 3. 30	N.	3	Blue	0·7	. . .	5	4
March 27	8. 53. 0	N.	1	Blue	1	. . .	12	5
March 29	8. 0. 0	H., J.	Venus	Yellow	7	Slight	15	6
,,	11. 9. 0	N.	> 1	Bluish-white	> 1	Fine	15	7
March 31	10. 49. 0	N.	1	Blue	0·8	Train	..	8
April 2	10. 56. 0	N.	2	Blue	0·7	Train	10	9
June 14	12. 0. 0	N.	> Jupiter	Reddish-yellow	> 2	Dusky red	25	10
August 9	9. 10. 0	G.	Sma	Yellow	. . .	. . .	..	11
,,	10. 55. 0	N.	Jupiter	Yellow	1	. . .	15	12
August 10	9. 37. 37	W.	3	Bluish-white	0·5	None	12	13
,,	9. 44. 23	W.	3	Green	0·5	. . .	15	14
,,	9. 47. 57	G.	3	Bluish-white	1	. . .	5	15
,,	9. 49. 32	W.	3	Green	1	. . .	10	16
,,	9. 56. 57	G.	3	Green	0·5	. . .	20	17
,,	9. 58. 7	G.	2	Green	1	Train	20	18
,,	10. 1. 38	G.	2	Green	0·5	. . .	30	19
,,	10. 4. 49	W.	2	Bluish-white	0·5	. . .	10	20
,,	10. 8. 44	G., W.	2	Bluish-white	0·5	. . .	10	21
,,	10. 10. 35	G.	2	Bluish-white	1	. . .	25	22
,,	10. 15. 51	G., W.	3	Bluish-white	0·5	. . .	10	23
,,	10. 20. 24	G., W.	1	Bluish-white	1	. . .	20	24
,,	10. 27. 14	G.,H.,W.	2	Bluish-white	1	. . .	20	25
,,	10. 42. 13	N.	2	Blue	. . .	Train	15	26
,,	10. 43. 7	W.	1	Bluish-white	1	Fine	30	27
,,	10. 47. 45	W.	1	Bluish-white	1	Fine	10	28
,,	10. 54. 46	W.	3	Bluish-white	0·5	None	..	29
,,	11. 9. 17	W.	3	Bluish-white	1	None	8	30
,,	11. 20. 14	W.	3	Bluish-white	. . .	None	10	31
,,	11. 24. 4	H., W.	2	Bluish-white	0·5	None	5	32
,,	11. 30. 17	N., W.	3	Blue	0·5	. . .	3	33
,,	11. 39. 50	N., W.	1	Bluish-white	1	Fine	..	34
,,	11. 42. 19	H., W.	1	Bluish-white	. . .	Fine	20	35
,,	12. 7. 24	N.	3	Blue	0·5	None	..	36
,,	12. 10. 16	W.	2	Bluish-white	0·5	None	15	37
,,	12. 10. 32	W.	1	Bluish-white	1	Fine	8	38
,,	12. 29. 32	N., H.	> 1	Blue	1	Fine	..	39
,,	12. 38. 15	N.,H.,W.	1	Blue	1	Fine	15	40
,,	12. 43. 1	W.	1	Bluish-white	1	Train	20	41
,,	12. 51. 15	W.	1	Bluish-white	1	Fine	..	42
,,	12. 51. 58	N.	2	Blue	0·7	Slight	20	43
,,	12. 54. 16	N.	2	Blue	0·5	. . .	2	44
,,	12. 55. 45	N.,H.,W.	1	Bluish-white	0·5	None	..	45
,,	13. 1. 32	N. H.	3	Blue	0·6	None	..	46
,,	13. 9. 26	N.	2	Bluish-white	. . .	Slight	..	47
,,	13. 13. 47	N.	1	Bluish-white	1	Fine, 1 s.	20	48
,,	13. 13. 49	N., H.	1	Bluish-white	1	. . .	..	49
,,	13. 19. 9	N., H.	2	Blue	0·7	Slight	12	50

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Number for Reference.	Path of Meteor through the Stars.
1	From direction of γ Tauri towards ι Orionis.
2	Passed across ϵ Leonis, from direction of r Lyncis.
3	From a point nearly midway between β Leonis and Coma Berenices, passed across ρ Virginis.
4	Directed from ζ Ursæ Majoris, passed midway between λ and μ Ursæ Majoris.
5	Passed across ϵ Virginis.
6	From direction of β Leonis, fell with slight inclination from vertical towards horizon.
7	Directed from ζ Leonis, passed across ϵ Hydræ. Sparks seen at end of path.
8	From direction of r Lyncis, disappeared 10° above Procyon.
9	From r Lyncis to a point just above α Geminorum.
10	Directed from 12 Canum Venaticorum, disappeared near ν Ursæ Majoris.
11	Started midway between α Cygni and α Aquilæ, passed across α Aquilæ.
12	Directed from α Trianguli, commenced near Musca, and fell with inclination of 5° from perpendicular to left.
13	From ϵ Cephei, passed almost directly across α Cygni.
14	Passed about 2° above α Andromedæ, on a line parallel to joining line of δ and ϵ Cassiopeiæ.
15	Passed a little below β Andromedæ.
16	From β Cassiopeiæ towards γ Cassiopeiæ.
17	From Polaris towards γ Ursæ Minoris.
18	From midway between Cassiopeia and Perseus to a point 20° below Polaris.
19	From a point midway between α and γ Cassiopeiæ, moved towards π Pegasi.
20	From direction of ϵ Cassiopeiæ towards β Ursæ Majoris.
21	Passed midway between β and η Pegasi towards ϵ Pegasi.
22	From about 10° to the right of α Ursæ Majoris, passed about midway between α and β Ursæ Majoris.
23	Passed midway between α and η Cephei towards Polaris.
24	Passed midway between α and β Cassiopeiæ towards α Cygni.
25	From α Cephei, passed midway between α Cygni and α Cassiopeiæ towards α Pegasi.
26	Directed from γ Cassiopeiæ, moved towards ζ Ursæ Majoris.
27	Passed midway between ι and θ Draconis towards α Coronæ.
28	Passed about 3° above η Ursæ Majoris from direction of Polaris.
29	From direction of ζ Ursæ Majoris towards Arcturus.
30	From direction of β Cassiopeiæ, passed about 3° East of α Cephei.
31	Passed about 6° below Polaris towards ζ Ursæ Majoris, moving from the direction of β Cassiopeiæ.
32	Fell nearly perpendicularly past α Ursæ Majoris, from direction of Polaris.
33	Directed from Custos, passed very near p Camelopardali.
34	Directed from β Andromedæ, passed about 15° below γ Pegasi.
35	From a point just below Polaris towards α Draconis.
36	From ι Draconis to β Boötis.
37	From δ Andromedæ towards a point 2° below γ Pegasi.
38	From direction of γ Cassiopeiæ towards o Honorum.
39	From γ Lyræ to ϵ Aquilæ.
40	From a point 10° below δ Cygni, passed between α and ζ Lyræ.
41	From o Honorum, past β Pegasi, towards α Pegasi.
42	Passed across ϵ Aurigæ, from direction of ϵ Cassiopeiæ.
43	From o Honorum, passed midway between α Pegasi and α Andromedæ.
44	Appeared midway between γ and η Cassiopeiæ, moving towards β Cassiopeiæ.
45	Passed acrosss c Muscæ, from direction of β Persei.
46	Passed midway between γ Arietis and η Piscium, from direction of δ Andromedæ.
47	From β Pegasi to ϵ Aquarii.
48	From near ζ Cygni, passed across Delphinus.
49	Path parallel to that of preceding meteor, passing 7° to left of Delphinus.
50	From 1° South of ζ Cygni, passed to a point 3° South and above γ Delphini.

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Month and Day, 1867.		Greenwich Mean Solar Time.	Observer.	Apparent Size of Meteor in Star-Magnitudes.	Colour of Meteor.	Duration of Meteor in Seconds of Time.	Appearance and Duration of Train.	Length of Meteor's Path in Degrees.	Number for Reference.
		h m s						°	
August	10	13. 24. 42	N., H.	1	Blue	1	Fine, 2°	..	1
	,,	13. 28. 53	N.	2	Blue	0·6	Train	..	2
	,,	13. 29. 44	N.	2	Blue	0·6	Faint	..	3
	,,	13. 35. 58	N.	1	Blue	1	Train	..	4
	,,	13. 42. 47	N., H.	2	Blue	0·6	Slight	7	5
August	12	9. 3. 0	N.	1	Blue	1	Train	..	6
	,,	10. 56. 46	W.	3	Bluish-white	1	None	10	7
	,,	10. 58. 4	J., W.	1	Yellowish	0·5	Fine	5	8
	,,	11. 4. 41	J., W.	2	Bluish-white	1	Fine	..	9
	,,	11. 12. 30	W.	2	Bluish-white	0·5	None	7	10
	,,	11. 28. 9	N.	2	Blue	0·6	Train	7	11
	,,	11. 32. 1	W.	2	Bluish-white	0·5	None	12	12
	,,	11. 54. 16	N.	1	Bluish-white	. . .	. . .	3	13
August	13	10. 7. 52	W.	1	Bluish-white	1	Train	25	14
	,,	10. 16. 13	W.	1	Yellowish	1	Fine	15	15
	,,	10. 28. 28	W.	2	Bluish-white	Momentary	None	10	16
August	20	9. 18. 42	W.	1	Bluish-white	1	Fine	45	17
September	10	10. 52. 30	N.	2	Blue	0·5	None	..	18
November	13	8. 55. 19	F.	1	Bluish-white	0·3	Short	8	19
	,,	11. 43. 40	W.	1	Blue	1	None	20	20
	,,	11. 46. 27	H.	1	Blue	1	None	13	21
	,,	11. 58. 10	H.	2	Bluish	1	. . .	10	22
	,,	12. 11. 7	N.	1	Bluish-white	2	Fine, 1°	..	23
	,,	12. 14. 47	H., J., W.	Jupiter	Yellowish	1·5	Fine	25	24
	,,	12. 30. 11	J., W.	Jupiter	Yellowish	1	Fine	10	25
	,,	16. 11. 59	H.	2	Bluish	1	Faint	16	26
	,,	16. 19. 47	H., W.	1	Yellowish	1	Train	15	27
	,,	16. 25. 9	N., W.	Jupiter	Reddish	1	Train	12	28
November	14	13. 54. 41	H., W.	1	Bluish-white	1	None	20	29
	,,	14. 7. 50	H.	1	Bluish	1	. . .	15	30
	,,	14. 11. 16	H., W.	1	Bluish-white	1	Train	20	31
	,,	14. 17. 57	W.	Jupiter	Yellowish	1	Fine	15	32
	,,	14. 50. 5	W.	Jupiter	Yellowish	1	Fine	10	33
	,,	15. 4. 6	H.	> 1	Bluish	1	Fine	20	34
	,,	15. 8. 37	W.	1	Bluish-white	0·5	None	15	35
	,,	15. 23. 4	H.	2	Blue	0·5	Faint	10	36
	,,	15. 29. 16	H., W.	5 × Jupiter	Bluish	4	Fine, 25°	10	37
	,,	15. 35. 14	H., W.	1	Bluish	1	Train	20	38
	,,	15. 37. 53	H., W.	1	Blue	> 1	Train	12	39
	,,	15. 40. 23	W.	2 × Jupiter	Yellowish	2	Fine	15	40
	,,	15. 42. 24	H.	1	Blue	1	Train	10	41
	,,	15. 48. 18	H., W.	1	Bluish-white	1	Slight	20	42
	,,	15. 52. 43	H.	1	Bluish	1	. . .	10	43
	,,	15. 57. 15	W.	1	Bluish-white	1	Fine	>20	44
	,,	15. 57. 16	H., W.	1	White	< 1	Train	15	45
	,,	16. 2. 44	H.	2 × Jupiter	Bright blue	2	Fine, 5°	20	46
	,,	16. 15. 32	H.	2	White	1	Faint	10	47
	,,	16. 19. 14	H.	Jupiter	Bluish	2	Fine	20	48
	,,	16. 24. 17	H.	> 1	Yellow	1	Train	6	49
	,,	16. 59. 1	N.	1	Bluish-white	1·5	Fine, 1°·5	5	50
	,,	17. 7. 41	H.	Jupiter	Blue	1	Train	12	51
	,,	17. 12. 44	N., H.	3	Blue	1	. . .	12	52

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Number for Reference.	Path of Meteor through the Stars.
1	From midway between γ and δ Cygni to a point between β Cygni and β Lyræ.
2	Directed from γ Cassiopeæ, passed across κ Draconis.
3	From direction of γ Cassiopeiæ, passed 2° above α Andromedæ towards α Pegasi.
4	Passed across β Aquarii from between θ and ϵ Aquarii.
5	From γ Pegasi towards λ Piscium.
6	From near α Lyræ almost to α Ophiuchi.
7	From direction of β Pegasi, passed a little above λ Honorum towards β Cassiopeiæ.
8	Passed across γ Andromedæ from the direction of ϵ Cassiopeiæ.
9	From a point about 2° above γ Cephei towards γ Draconis.
10	Fell from near o Pegasi towards horizon. Line of flight parallel to joining line of o and β Pegasi.
11	From direction of λ Draconis, passed midway between α Draconis and ζ Ursæ Majoris.
12	From a little above γ Cephei, moved towards β Ursæ Minoris.
13	Passed across o Ursæ Majoris from direction of b Lyncis.
14	From direction of Polaris, passed between ϵ and ζ Ursæ Majoris towards η Boötis.
15	From direction of ι Draconis, across θ Boötis and passing η Ursæ Majoris.
16	From ι Cassiopeiæ towards γ Cephei.
17	Passed across π Pegasi towards ϵ Pegasi.
18	Directed from γ Pegasi, passed about 3° above α Arietis
19	Passed about midway between α and β Aquilæ, falling vertically towards West horizon.
20	Passed from Pollux towards horizon; path forming continuation of a line joining Pollux and β Tauri.
21	From direction of φ Cephei, passed between δ and σ Draconis.
22	Passed just below ζ Ursæ Majoris towards ζ Draconis.
23	From direction of α Ursæ Majoris, passed across β Ursæ Minoris.
24	From δ Ursæ Majoris towards ζ Draconis.
25	From a point 3° above ζ Leonis, moved towards ζ Ursæ Majoris.
26	From a point 3° below and North of α Ursæ Majoris, passed midway between β and γ Ursæ Minoris.
27	Directed from η Ursæ Majoris to a point about 12° below η Draconis.
28	Passed across zenith from direction of Leo; disappeared near β Geminorum.
29	From α Leporis, passed 3° above ϵ Leporis towards horizon.
30	Directed from η Ursæ Majoris, passed towards a point 1° above η Draconis.
31	Directed from ω Cephei, towards ζ Draconis.
32	Passed almost directly across α Cygni from direction of η Draconis.
33	From direction of α Leporis, moved in line of continuation of line joining α Leporis and a point 5° above Sirius.
34	Started just below α Cephei, and moved on line of continuation of line joining δ Ursæ Minoris and α Cephei.
35	Fell perpendicularly from direction of Polaris, about 2° on the right of ϵ Draconis.
36	From direction of Capella, disappeared about 2° above λ Ursæ Majoris.
37	From direction of α Leonis, passed across λ Hydræ. Center of path at λ Hydræ.
38	From direction of ϵ Leonis, passed below γ Cancri towards α Orionis.
39	From direction of a point midway between Procyon and α Hydræ, disappeared about 1° below Sirius.
40	From direction of β Leonis towards horizon. Track a continuation of line passing from β Leonis to 3° above θ Leonis.
41	Fell almost perpendicularly from direction of γ Leonis, in continuation of line joining m and γ Leonis.
42	From a point about 10° South of 12 Canum Venaticorum towards Arcturus.
43	Fell vertically from a point midway between η Ursæ Majoris and 12 Can. Venat.; fell parallel to line joining β and γ Ursæ Majoris.
44	From ϵ Leonis, passed immediately below γ Cancri towards α Orionis.
45	From direction of ϵ Leonis, passed across ϵ Hydræ.
46	From direction of Procyon, passed 1° below κ Orionis.
47	Passed between κ and ι Ursæ Majoris from direction of υ Ursæ Majoris.
48	Directed from Leo, passed 2° above α Ursæ Majoris and 1° degree above λ Draconis.
49	Passed midway between γ and δ Virginis from direction of θ Leonis.
50	From a point midway between γ and δ Leonis to δ Leonis.
51	Passed 5° West of Procyon, from direction of ϵ Leonis.
52	Directed from δ Leonis, towards Arcturus.

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ROYAL OBSERVATORY, GREENWICH.

REDUCTION

WITH REFERENCE TO THE POSITIONS OF THE SUN AND MOON

OF

THE MAGNETIC OBSERVATIONS

FROM **1858** TO **1863**

(EXCLUDING THE DAYS OF GREAT MAGNETIC DISTURBANCE).

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mediate value being treated with an intermediate degree of respect. The numerical measures which are subsequently used are in all cases the ordinates of the hand-curve thus traced.

Sheets, properly printed and ruled, were prepared for the entry of the measures of the ordinates. The days of the month, or days of the lunation (as the case might be), followed in vertical columns: the homonymous hours of each day, solar or lunar (as the case might be), being arranged on the same horizontal line. One computer, holding a scale graduated to minutes of arc, or to fractional parts of the Horizontal or Vertical Force, read off the measures of the ordinates; while another computer entered the measures in the sheets.

The means were then to be taken, with reference to days and with reference to hours; and it became important to decide on the course to be adopted in instances where the record was imperfect. It was certain, however, that the change of Declination from hour to hour is greater than that from day to day, and it seemed likely that the same law would apply to Horizontal Force and Vertical Force. This consideration determined the rule—that no mean should be taken for a day, unless the series of 24 readings were complete; but that the means of the successive hours should in all instances be taken.

This, which is common to all, being premised, I have now to explain the further processes adopted for each section of the work.

I. REDUCTIONS REFERRED TO THE SUN'S PLACE.

1. OBSERVATIONS OF MAGNETIC WESTERN DECLINATION, REFERRED TO THE SUN'S PLACE.

It will be seen, in the description of the Photographic Apparatus and Methods (Greenwich Magnetical and Meteorological Observations, 1862 and 1863, Introduction) that each photographic sheet is furnished with a scale of time, whose zeros have been determined by comparison of arbitrary interruptions of the beam of light with the clock-times of making the interruptions as recorded by the observer. The clock was adjusted to Greenwich Mean Solar Time (the former system of reference to Göttingen time having been discontinued); and the time-scales therefore represent Greenwich mean solar time: and the measures of ordinates, made at every hour of the scale, therefore, give the magnetic declination for every hour of Greenwich Mean Solar Time.

From 1859, December 2 to December 9, and again from 1860, February 19 to March 21, and March 27 to 29, the timepiece which gives motion to the barrel was away for repair. Other interruptions arise only from the causes already mentioned.

The zeros of measure of declination were determined by comparing the measures of the photographic ordinates at certain times with the declinations observed by theodolite at the same times, and the photographic measures are therefore liable to the same errors as eye-observations. The following occurrences in the adjustment of the declination-magnet must therefore be taken into account, as affecting the photographic ordinates.

The magnet is suspended by a skein of silk, through the intermediation of an adjustable circle, called the "torsion-circle." The circle ought to be so adjusted that, in ordinary positions of the magnet, the tension of the suspending skein exerts no appreciable force disturbing the position of the magnet. This adjustment is ascertained by inserting, in the place of the magnet, a brass bar, and remarking whether it takes spontaneously a position corresponding nearly with that of the magnet. If there is sensible discordance, it shows that the magnet has been subject to an angular strain, turning it from its proper position by a certain multiple of that discordance. The multiple has been found by experiment to be $\frac{1}{100}$ nearly.

The examination above described is made at the end of every year, and at all other times when necessary.

From 1858, January 1, to 1860, January 19, the reading of the torsion-circle at every examination was 266°. On the last-mentioned day the suspension-skein broke at its attachment to the leather strap. In every subsequent examination to the end of 1862 the reading was 265°. After the usual examination of adjustments at the end of 1862 the reading of the torsion-circle was 287°. 30′.; and it continued to maintain this value steadily through the year 1863. It would seem probable that some unusual bearing had been given to the silk skein; for, after the adjustments at the end of 1863, the reading of the torsion-circle returned to the value 264°. 15′. There is not the slightest doubt upon the accuracy of the daily indications.

I now proceed with the Printed Tables of this Section.

Table I. contains the Mean Westerly Declination of the Magnet, as derived from the mean of 24 hourly measures on each Astronomical Day. On many of the days omitted, the number of measures is not far deficient from 24; but it has been thought best to adhere rigorously to the simple rule stated above.

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Table II. gives the Mean Westerly Declination in each month, the numbers being the simple means, for each month, of the numbers in Table IV. The continued secular diminution of Westerly Declination, from month to month, is shown generally in every year, but more clearly in the column of "Mean of Years."

On comparing the mean of the three first annual means with the mean of the three last, it appears that the annual diminution is 9′·2. The proportional parts of this, for the separate months, being applied with sign changed to the numbers of "Mean of Years," form the "Mean corrected for Secular Change." If the secular change were perfectly uniform, and the observations complete and free from error, these numbers would be equal. And, in fact, there is no change which we can consider to be certainly established.

Table III. gives the Monthly Means of the actual diurnal range of the magnet in the hourly measures, or the mean of the differences between the greatest and least measures on each day, at whatever hours they may occur. The actual ranges in observation would be greater than these, because they would be obtained from the salient points of the photographic curve.

Table IV. gives the Mean Monthly Determination of the Western Declination at every hour of the day, showing the diurnal course of declination.

By comparing, for each month, the number in Table II. (which is for the mean of hours) with the numbers in Table IV. for each hour of the day, a Monthly Table of Diurnal Inequality was formed. This table is not printed here; but from it the two following tables are derived.

To form Table V., the corresponding numbers of the last-mentioned table, for each month and each hour in the different years, were collected, and their means taken separately for each month. It exhibits the varying character of Diurnal Inequality through the months of the year. The hours refer to Greenwich Mean Solar Time.

To form Table VI., the corresponding numbers of the same table, for the different months of each year, were collected, and their means taken separately for each year. It exhibits the Mean Diurnal Inequality in each year, and the varying character of Diurnal Inequality from year to year. The Mean Diurnal Inequality for all the years is also exhibited. The Double Diurnal Fluctuation is clearly shown. The hours are still those of Greenwich Mean Solar Time.

As a westerly deviation through the angle θ implies that a westerly force has been impressed on the North End of the magnet (and an equal easterly force on the South End) represented by Horizontal Force $\times \sin \theta$, the numerical value of "sine of deviation" is given in the last column as representing the westerly force in terms of Horizontal Force.

2. Observations of Magnetic Horizontal Force referred to the Sun's Place.

The time used in interpreting the measures of the photographic ordinates of the Bifilar Magnet Curve is Greenwich Mean Solar Time. The zeros of measure of Horizontal Force were determined by comparing the measures of the photographic ordinates at certain times with the results of eye-observation at the same times; and the zero tacitly adopted for the photographic ordinates is therefore the same as that for the eye-observation. The zero for eye-observations is arbitrary (depending on the length of scale, &c.); and the only circumstance which determines the real or natural zero is, that the evaluation of the divisions of the scale has been made by a process which implies that the fluctuations of Horizontal Force are fluctuations about the magnitude 1·0000. It is therefore necessary to conceive such a constant to be added to the numbers derived from the photographic measures as will make their magnitude nearly 1·0000 $\pm$ fluctuations.

The magnet is suspended by the two branches of a skein of silk, forming practically two suspending cords, through the intermediation of a torsion-circle. The state of this circle is examined at the end of every year, and thus the results of one year are absolutely divided (by reason of the change of adjustments) from the results of another year. But, as a general rule, the state of adjustments through each year is unaltered.

In addition, however, to the causes which interrupted the observations of the declination-magnet, the following affected the horizontal-force-magnet.

On 1860, May 10 and 11, workmen deranged the adjustments of the magnet, and interrupted the series of records.

On 1861, June 22, a portion of the brass suspension-piece gave way, and was not restored till July 12. It is possible that the suspension was gradually yielding in the month of May, the indications having sensibly changed on May 9, 10, 14, 16, and 21.

From 1862, January 1 to January 9, many changes were made in the adjustment; the observations during these days are rejected.

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For each month separately, in Table IX., the mean for the month in Table VIII. was subtracted from every number in the same month in Table IX., and thus was formed the Mean Diurnal Inequality of Horizontal Force in each month. It has not been thought necessary to print this table, but the means for each year are taken to form the two next tables.

Table X. gives the Diurnal Inequality of Horizontal Force for each month; the quantities for the same month in different years being grouped, and the means taken.

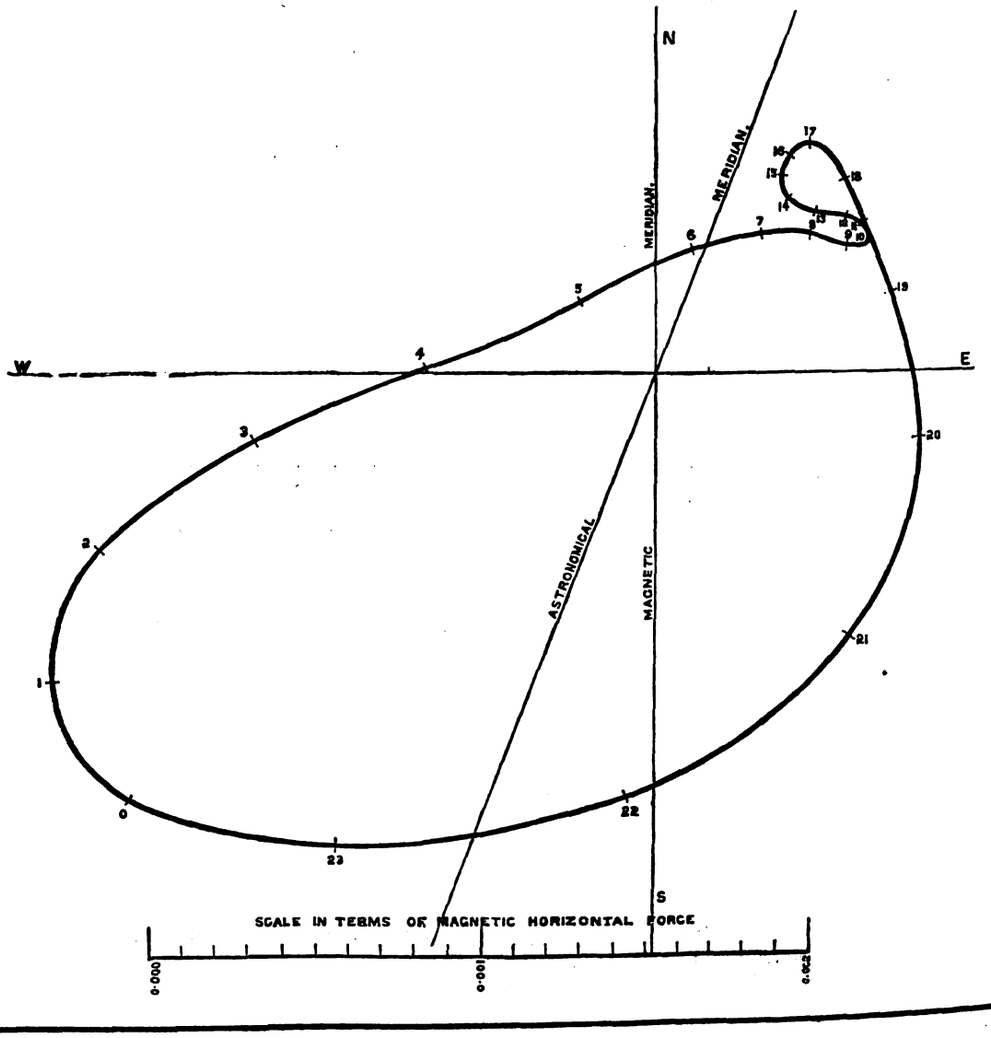
Table XI. gives the Diurnal Inequality of Horizontal Force for each year; the quantities for different months in the same year being grouped, and the means taken. The law of Diurnal Inequality is seen most clearly in the column of Mean of Years. There is a well-marked diminution of force in the day, with an increase in the night. The Horizontal Force is smallest a little after 23^h Greenwich Mean Solar Time. This, it will be remarked, is not the hottest part of the day. The reading of the thermometers in the magnet-boxes is highest at 5^h or 6^h Greenwich time in the summer, and at 4^h in the winter. The Diurnal Inequality therefore is not produced by error of temperature-correction, and the general order of these numbers tends to give confidence in the correction.

3. REMARKS ON THE COMBINATION OF THE DIURNAL INEQUALITIES OF DECLINATION AND OF HORIZONTAL FORCE.

If we trace a curve whose ordinate in the west direction represents the numbers in the last column of Table VI., and whose ordinate in the north direction represents the numbers in the last column of Table XI., we have the following:—

DIAGRAM explanatory of the MAGNITUDE and DIRECTION of the FORCES acting on the NORTH END of the MAGNET at GREENWICH at different HOURS of the SOLAR DAY, from the Mean of Observations 1858–1863.

The Arabic numerals refer to Greenwich Time.



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If the Mean Declination and Horizontal Force are the same thing as the Undisturbed Declination and Horizontal Force, the force of Diurnal Inequality at any time will be represented in magnitude and direction by a line drawn from the origin of co-ordinates to the point of the curve corresponding to that time. If the mean and the undisturbed are not the same, a different origin must be taken, in such a position that the preponderant measures to the curve will correspond to the preponderant forces. It would seem most probable that the undisturbed measures are represented by the ordinates of some point in the line joining 7^h and 18^h, or in the line joining 8^h and 17^h, or perhaps their intersection.

The curves formed from the numbers in Tables V. and X. for each month differ very remarkably in the forms given by the summer months and by the winter months. The same difference was found in the discussion of the Observations 1841–1847 and 1848–1857. *See the Philosophical Transactions*, 1863, page 309, &c. The curves of the summer months are far the larger.

In the Reduction of the Observations 1848–1857 (Greenwich Observations, 1859), I have stated my idea that the Diurnal Inequality may depend principally upon Solar Radiation on the Atlantic Ocean.

4. Observations of Magnetic Vertical Force referred to the Sun's Place.

As in the instance of the Horizontal Force Magnet, the time used is Greenwich Mean Solar Time, and the zero to which the photographic measures of Vertical Force are referred requires such an addition that their magnitudes shall be nearly 1·0000 ± fluctuations.

The adjustments of a Vertical Force Magnet are much more liable to change than those of the other instruments. In consequence of this, the periods of continuity of adjustment have been too much broken up to permit any important comparisons of the results at different times.

During the year 1858 the knife-edges appeared to be in very good order. They had received no important change since their mounting in 1848.

In the beginning of 1859, during the annual adjustments, their action was less satisfactory than usual. On examining their prismatic surfaces, I thought I could perceive that they had not been ground with sufficient attention to flatness. The instrument was placed in the hands of Mr. Simms on 1859, January 31, with request that he would give the same care as to the most accurate knife-edges of pendulum. Since the return of the instrument on 1859, April 19, its delicacy has left nothing to desire.

At the end of 1862 the knife-edges were again ground by Mr. Simms.

In addition to these interruptions and to those stated at the beginning of this Introduction, the following have occurred:

The timepiece (for giving motion to the photographic barrel) was away, 1858, September 11 to 24, and 1862, September 30 to October 8.

After an examination of the magnet on 1861, April 15, a change of position took place, and the photographic records of 1861, April 15 and 16, were rejected.

The correction for temperature was treated in the same manner as that for the temperature of the Horizontal Force Magnet.

Table XII. gives the mean of the Vertical Force Readings on every day, corrected for temperature. The interruptions by a double line — — denote that the adjustments have been changed, so that the readings above and below it are not comparable. The interruptions by a single line ——— denote that there has been merely a change in one of the constants of reduction (the time of vibration in the vertical plane), which produces a comparatively small change in the reading.

Table XIII. contains the monthly means; the interrupting lines being placed at the divisions nearest to the exact days.

Table XIV. gives, for every month, the mean of the Vertical Forces at each hour through all the days of the month, corrected for temperature.

For each month separately, in Table XIV., the mean for the month in Table XIII. was subtracted from every number in the same month in Table XIV., and thus was formed the Mean Diurnal Inequality of Vertical Force in each month. The table so formed is not printed, but the means for each year are taken to form the two next tables.

Table XV. gives the Diurnal Inequality of Vertical Force for each month; the quantities for the same month in different years being grouped, and the means taken. To express the inequality in terms of Horizontal Force, the numbers are multiplied by tangent of Mean Dip, or tangent 68°. 16′.

Table XVI. gives the Diurnal Inequality of Vertical Force for each year, the quantities for different months in the

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REDUCTIONS OF MAGNETIC DECLINATION REFERRED TO THE SUN'S PLACE.

TABLE I.—MEAN WESTERLY DECLINATION of the MAGNET on each ASTRONOMICAL DAY, as DEDUCED from the MEAN of TWENTY-FOUR HOURLY MEASURES of ORDINATES of the PHOTOGRAPHIC REGISTER on that DAY.

Days of the Month.	1858. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	1859. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	
1	..	33·5	..	34·5	31·6	28·2	..	28·2	31·1	27·0	..	28·7	23·7	25·8	24·8	25·1	26·0	24·4	25·1	23·7	..	21·1	17·9	..
2	..	33·6	35·0	33·3	32·0	29·2	26·4	28·9	28·7	27·3	30·8	30·5	..	26·4	29·8	25·5	25·1	23·0	23·9	25·4	..	19·7	18·0	..
3	33·0	34·2	33·8	..	31·3	29·9	28·3	27·8	27·8	26·5	29·8	29·8	..	26·4	28·8	..	25·3	23·2	24·5	23·7	..	21·3	17·2	..
4	34·0	..	32·7	32·3	32·3	28·7	28·7	28·7	27·5	27·2	30·3	..	25·3	26·5	30·9	..	25·7	..	23·2	24·3	..	20·2	18·2	..
5	..	33·5	..	..	32·0	..	26·3	28·1	28·4	28·0	30·4	32·3	23·9	26·5	29·9	25·9	23·2	24·0	22·5	24·2	25·5	21·2	..	..
6	34·0	34·5	34·0	32·6	..	29·4	..	28·4	28·0	28·1	29·4	29·7	..	27·1	30·5	..	22·5	23·2	..	22·7	23·9	19·1	18·7	..
7	..	34·3	33·2	32·8	30·6	29·6	27·6	28·7	27·0	28·0	29·1	29·6	27·4	27·9	31·2	..	22·1	24·8	22·8	21·9	22·2	22·3	..	..
8	..	33·3	34·0	31·1	33·0	29·6	26·9	29·2	29·4	26·6	30·4	28·9	27·5	27·8	30·7	28·9	21·7	..	23·1	22·9	22·0	22·4	20·7	..
9	..	..	33·5	..	31·8	..	26·7	28·7	28·5	26·5	30·0	29·4	28·2	..	28·5	26·6	21·3	25·1	..	22·9	22·8	22·2	20·6	..
10	..	32·9	33·7	34·3	31·7	28·5	26·6	28·5	28·9	26·9	29·7	28·8	26·7	27·5	25·0	27·7	..	23·6	25·2	22·2	22·2	21·0	20·9	..
11	36·2	33·8	..	32·2	..	29·6	..	27·7	..	28·2	30·7	29·7	27·2	27·5	26·8	27·8	20·0	24·2	..	20·5	22·0	..	21·2	..
12	34·2	32·7	..	33·2	..	30·3	27·7	29·1	28·3	26·9	30·6	30·0	26·8	26·6	26·1	27·2	21·8	23·7	..	22·7	..	..	..	20·3
13	35·8	33·3	33·5	33·8	28·4	28·8	28·2	28·9	27·9	26·2	29·7	30·8	27·7	27·6	26·0	27·8	22·8	24·1	23·6	22·4	24·6	..	20·4	..
14	32·8	33·0	..	34·6	28·8	..	29·8	28·4	28·5	26·5	30·4	30·0	27·8	27·6	27·5	28·1	22·8	..	24·1	21·9	24·2	20·2	20·4	..
15	..	33·2	..	32·3	29·7	28·6	29·6	27·7	..	27·1	30·1	..	27·3	26·5	27·8	27·4	22·6	23·5	24·7	23·6	22·7	..	20·4	..
16	..	34·0	33·5	32·8	28·9	28·7	28·9	26·9	27·7	26·1	29·6	29·2	26·3	27·6	27·0	..	20·9	25·0	24·9	25·0	24·1	19·4	19·7	..
17	34·0	33·6	32·8	34·5	28·5	..	..	28·8	27·5	..	..	29·2	27·7	27·0	26·7	27·9	19·5	23·4	..	22·3	21·4	..	19·8	16·7
18	34·5	33·4	32·8	32·5	28·8	29·0	29·1	28·6	28·5	25·0	30·9	29·6	27·4	26·6	26·2	..	17·0	22·9	..	21·6	..	..	..	..
19	33·5	32·6	32·6	32·5	29·2	..	29·2	27·9	28·0	21·1	30·0	29·8	27·8	26·5	25·6	..	20·1	24·3	25·4	22·8	..	19·9	..	18·6
20	33·3	32·8	32·9	32·3	28·6	29·7	29·8	28·4	27·6	22·3	30·6	29·5	26·1	27·1	26·7	26·1	19·8	..	..	22·2	..	20·6	19·6	..
21	33·8	32·9	..	32·1	28·3	28·9	28·8	..	28·0	26·4	30·4	29·2	26·7	25·8	25·6	..	..	23·9	24·3	22·5	23·0	21·0	..	18·2
22	33·7	34·6	32·7	32·4	28·3	30·7	..	28·8	25·4	26·6	30·8	30·1	26·5	..	25·6	..	20·4	24·4	25·3	..	22·5	19·6	18·4	18·3
23	34·5	33·0	33·3	..	..	..	..	30·0	28·2	25·8	30·6	29·2	27·4	..	27·9	..	..	23·7	..	21·4	..	19·4	19·3	17·5
24	34·2	33·9	31·3	32·4	30·6	30·2	..	27·7	26·7	26·5	28·8	30·5	26·9	..	26·0	26·0	21·5	25·2	..	22·5	20·6	19·0	19·4	18·2
25	..	32·4	33·0	..	30·0	30·1	29·7	30·0	26·8	25·7	..	29·0	26·7	29·7	26·4	25·5	..	26·5	..	23·0	21·8	18·6	19·5	17·3
26	32·6	32·5	33·1	34·2	29·7	28·2	30·0	28·1	25·7	26·7	..	29·7	26·5	29·3	26·2	24·6	..	26·0	24·1	21·9	21·6	19·2	19·2	19·0
27	33·2	33·4	..	34·7	29·2	29·7	27·8	..	26·1	..	..	29·2	27·1	28·8	26·4	26·0	..	24·9	..	20·8	20·1	18·7	19·0	..
28	32·9	33·7	..	34·8	29·3	29·4	29·8	29·3	25·7	25·5	30·4	..	26·4	26·4	27·3	23·5	..	27·0	..	..	19·8	..	19·6	..
29	32·4		..	34·6	29·4	26·8	30·0	28·9	25·5	..	30·6	..	26·4		25·4	..	25·6	25·5	26·1	..	20·5	18·4	18·9	..
30	33·4		35·1	33·8	..	27·7	29·0	28·5	26·8	..	29·7	..	27·4		28·1	25·1	24·1	25·0	24·1	23·5	..	18·1	19·2	..
31	34·0		34·5		..		..	29·3		32·3		26·5	26·4		28·0		24·2		25·2	22·8		17·5		..

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TABLE I.—MEAN WESTERLY DECLINATION of the MAGNET on each ASTRONOMICAL DAY—*concluded.*

1860.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
1	..	13·6	..	13·7	..	16·5	..	15·6	12·7	..	13·5	..
2	..	13·8	..	15·2	..	..	14·7	14·4	14·7	12·7	15·1	..
3	..	13·6	..	14·0	..	17·9	14·6	..	13·1	14·7	13·2	12·3
4	..	..	..	13·1	19·3	17·5	..	14·3	12·9	10·8	9·5	..
5	..	14·8	..	..	..	16·8	15·7	14·2	13·5	12·3	11·5	12·8
6	..	13·9	..	14·3	..	..	14·4	..	..	11·5	12·4	11·5
7	..	..	..	13·1	..	..	..	15·3	..	13·3	11·6	13·0
8	..	13·7	..	14·4	..	14·2	..	..	13·4	11·9	..	12·6
9	..	13·7	..	..	..	16·2	..	..	13·1	12·9	..	12·4
10	..	12·3	..	12·9	..	16·8	15·9	..	..	11·7	11·2	12·3
11	..	14·6	..	11·1	..	..	15·6	..	..	13·1	..	12·9
12	..	15·1	..	11·8	..	..	16·7	..	..	12·0	11·6	13·2
13	15·5	14·7	..	..	18·3	..	15·9	14·4	11·1	12·4	12·2	12·1
14	..	13·6	..	..	18·0	14·4	16·1	15·8	12·4	13·1	12·0	..
15	..	13·6	..	13·2	15·5	14·3	..	16·1	12·9	13·0	12·7	10·3
16	..	13·6	..	13·7	16·6	13·0	..	..	12·5	..	13·0	..
17	19·0	14·5	..	11·5	17·3	15·9	13·5	15·9	12·7	14·2	12·2	12·9
18	15·5	..	..	11·9	18·1	14·4	14·9	16·1	13·5	14·0	12·8	..
19	..	..	..	..	..	15·2	..	16·2	12·0	14·3	13·8	..
20	..	..	..	..	..	15·3	16·2	15·8	12·4	13·4	13·0	..
21	..	..	..	14·1	..	15·0	16·5	14·1	12·5	..	11·9	..
22	..	..	..	14·1	..	13·8	15·6	17·8	13·2	14·0	12·1	..
23	..	..	13·9	14·9	..	14·4	15·3	14·2	13·3	14·4	10·8	11·0
24	..	..	13·7	15·3	14·5	16·6	15·2	14·7	12·4	15·1	12·2	11·8
25	14·9	..	14·0	..	17·4	15·1	14·9	..	11·0	14·7	11·9	..
26	12·9	..	..	23·4	..	..	14·8	..	12·6	15·6	13·0	..
27	15·1	..	..	21·4	17·3	..	14·3	..	13·4	..	12·3	..
28	14·2	..	..	..	..	..	..	14·0	14·2	15·4	12·0	..
29	14·1	..	..	..	16·2	..	15·1	13·6	..	15·0	..	..
30	13·8		..	..	16·0	..	15·0	13·2	..	15·0	11·9	..
31	13·4		13·7		19·3		17·0	14·6		15·0		..

1861.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°
1	..	70·5	71·1	68·9	67·8	..	..	63·9	..	..	61·8	62·2
2	..	69·4	69·8	..	68·2	60·7	64·0	65·3	..	..	61·8	..
3	70·8	70·7	71·0	..	67·7	59·8	66·0	..	..	..	..	62·0
4	..	70·0	..	67·9	..	60·4	66·9	..	..	61·5	..	61·6
5	..	70·3	..	..	68·8	60·0	..	..	..	61·7	..	61·7
6	71·9	69·8	70·4	67·4	67·2	60·7	65·7	..	..	..	62·6	..
7	71·7	70·2	69·7	67·3	68·5	60·1	65·9	..	..	..	63·3	..
8	71·7	70·2	71·0	67·1	67·2	60·6	..	..	..	..	..	60·2
9	71·1	70·5	..	66·4	67·9	..	..	..	..	..	..	60·8
10	71·3	70·1	77·1	67·0	67·6	56·7	63·9	..	..	..	..	61·2
11	69·8	70·2	..	66·1	66·8	56·5	..	..	..	..	..	61·6
12	70·4	68·3	75·4	68·8	67·2	..	..	..	..	62·0	62·0	60·3
13	70·4	69·6	77·6	68·6	66·3	..	..	..	..	59·9	61·7	60·7
14	69·8	69·5	..	69·0	66·4	..	..	..	..	61·2	63·0	60·8
15	70·3	70·0	80·8	68·7	..	63·0	..	..	..	60·6	63·4	..
16	69·4	70·3	76·0	70·4	..	..	..	..	..	62·1	..	..
17	69·6	70·7	75·2	70·2	..	..	..	..	62·2	61·3	..	60·2
18	69·7	69·3	79·5	68·9	..	..	65·7	..	..	61·8	62·1	62·5
19	70·5	70·2	77·1	69·2	67·2	..	..	..	..	61·8	61·8	..
20	70·5	69·9	76·8	68·7	65·9	..	..	..	..	62·3	60·5	..
21	71·3	69·4	82·1	69·2	64·5	..	..	..	..	61·1	60·3	..
22	69·9	69·8	79·6	68·2	61·3	..	..	..	62·2	..	62·2	60·0
23	70·4	70·6	..	69·9	60·7	58·7	..	..	62·5	..	..	60·9
24	..	69·3	78·0	69·1	60·0	..	..	65·9	..	62·1	60·7	..
25	..	70·7	75·5	..	60·5	..	..	..	62·0	..	..	61·1
26	..	69·5	70·3	67·8	60·9	67·4	..	..	61·3	..	..	..
27	69·2	68·0	67·5	67·5	62·8	68·3	..	65·2	61·3	..	61·4	59·7
28	70·9	68·9	69·3	..	62·3	..	..	..	..	61·5	59·4	60·4
29	69·2		69·3	68·3	..	..	..	..	61·4	61·1	59·6	..
30	70·7		..	66·6	..	..	..	..	..	60·8	61·3	..
31	..		70·1		..		..	..		60·6		..

1862.

	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°
1	..	..	..	..	..	..	46·4	54·0	..	50·2	51·9	49·6
2	..	59·6	58·5	..	..	45·2	52·2	53·0	..	49·4	50·9	50·8
3	..	59·2	..	52·6	..	47·2	51·2	55·8	..	..	48·6	50·2
4	..	60·1	58·7	51·9	..	..	53·0	..	..	48·1	51·3	49·5
5	58·7	59·6	58·5	51·5	..	..	..	53·5	50·5	51·3	50·5	49·5
6	59·3	..	..	52·2	..	..	52·3	..	..	..	49·6	48·7
7	58·1	58·2	..	..	..	..	49·5	52·3	..	49·9	..	51·7
8	..	57·9	56·6	52·1	..	..	51·3	52·2	49·5	49·4	..	..
9	..	57·2	56·4	52·8	..	51·6	48·0	49·2	53·9	50·6	49·8	51·4
10	..	..	56·4	..	..	..	49·9	..	50·8	52·0	48·1	..
11	57·7	57·4	..	..	..	..	51·3	50·0	49·0	..	48·2	..
12	58·8	59·5	56·2	..	..	51·6	..	52·6	51·6	45·5	..	..
13	59·1	57·4	58·1	48·5	..	53·2	..	49·5	51·6	..	48·7	..
14	57·5	57·3	57·1	..	..	53·9	..	..	52·6	52·6	48·7	..
15	56·7	57·2	..	..	..	..	54·5	52·0	52·7	54·0	48·9	..
16	58·7	56·9	..	..	49·8	53·3	54·1	..	51·7	54·8	50·1	..
17	58·9	58·5	59·9	..	..	52·0	49·3	51·7	50·5	54·8	51·0	46·0
18	58·2	58·4	58·7	..	..	52·0	49·4	..	51·7	53·8	48·6	47·9
19	58·4	58·3	..	47·1	..	56·2	47·8	..	52·4	52·6	49·0	53·6
20	58·1	..	..	47·9	..	56·3	51·4	..	52·6	..	49·9	52·3
21	55·3	..	..	..	..	54·4	..	50·6	51·5	..	49·5	49·6
22	61·8	59·0	..	..	..	53·6	46·9	50·6	51·8	49·9	..	49·6
23	58·9	59·3	..	..	..	53·1	46·8	53·9	52·1	50·2	50·0	48·7
24	58·5	58·9	..	..	..	54·0	42·0	..	50·9	51·7	..	42·3
25	59·9	58·3	..	..	..	54·4	45·1	54·4	50·7	49·5	50·0	49·3
26	59·8	58·1	..	52·3	..	52·5	52·9	53·4	50·4	49·3	48·8	..
27	58·7	58·0	..	50·1	47·2	53·0	51·6	..	..	..	50·4	..
28	59·1	57·5	..	..	..	51·9	50·5	54·2	50·2	49·2	51·3	..
29	59·2		..	..	..	47·8	53·8	52·1	51·4	47·3	50·8	..
30	59·6		..	..	..	..	52·6	53·3	49·8	48·7	49·2	..
31	59·9		..		..		53·2	53·0		49·7		..

1863.

	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°	20°
1	54·6	48·3	48·4	46·2	..	..	46·5	46·2	..	44·1	42·9	..
2	52·9	48·0	49·7	45·5	..	45·1	..	46·7	45·3	44·3	42·5	..
3	52·7	47·7	47·6	46·5	45·7	44·1	46·4	45·4	45·3	43·5	42·8	42·0
4	52·5	47·7	47·7	..	45·3	45·8	..	..	45·4	42·9	42·1	42·5
5	..	47·6	49·0	46·5	45·0	..	..	..	..	43·3	44·7	41·2
6	..	49·8	49·5	46·5	45·3	..	..	44·2	45·6	44·6	42·1	41·5
7	49·7	48·4	..	47·1	46·4	..	45·7	..	45·5	46·4	42·5	42·3
8	49·0	45·4	49·5	47·4	45·1	46·7	..	..	46·8	46·0	44·3	42·1
9	50·1	48·5	49·6	48·2	45·3	..	46·4	45·7	45·5	..	43·4	42·4
10	50·0	50·1	49·9	47·1	45·3	45·9	45·8	45·6	46·6	..	42·9	42·4
11	50·9	49·6	48·8	..	45·3	..	..	45·7	46·5	43·9	43·4	42·8
12	48·9	48·2	48·6	47·4	46·1	..	47·0	46·1	45·1	43·5	43·0	43·6
13	49·8	49·7	48·5	47·5	44·4	..	47·4	..	45·1	41·9	42·8	42·4
14	49·0	49·6	49·2	47·3	..	..	46·9	46·8	45·6	42·7	45·5	..
15	..	49·2	49·1	46·6	46·2	45·2	47·5	..	44·3	..	42·6	41·8
16	48·8	49·0	49·4	45·8	45·9	47·9	..	47·2	45·5	42·0	42·1	41·9
17	48·7	49·1	48·7	46·4	44·7	..	46·2	46·4	..	44·7	43·1	..
18	48·9	47·3	48·4	..	46·0	..	..	45·8	..	43·6	42·3	41·7
19	48·1	49·6	48·9	46·4	45·6	..	48·0	..	..	43·5	42·6	..
20	48·8	49·5	47·9	46·6	46·1	..	47·6	46·2	43·7	..	42·1	40·3
21	48·8	47·6	..	45·8	..	47·2	47·8	46·4	44·7	43·9	41·1	41·6
22	..	47·3	47·1	..	44·4	47·7	47·1	46·6	44·6	42·6	41·7	41·5
23	48·2	47·6	46·3	46·0	44·6	47·8	47·1	..	40·6	43·7	39·5	41·3
24	..	48·0	47·3	..	44·2	46·2	47·4	46·8	43·4	43·5	42·6	42·3
25	49·3	..	47·4	..	45·8	46·7	..	46·0	44·9	42·9	41·9	41·6
26	50·7	47·0	46·9	..	46·5	46·5	46·8	45·9	..	43·5	42·7	43·1
27	48·8	47·5	46·1	45·9	46·0	46·9	47·3	45·5	..	44·0	43·0	43·8
28	48·4	48·6	46·8	45·5	45·2	46·3	..	..	..	..	42·1	41·3
29	48·7		45·9	50·1	47·4	..	..	46·3	43·6	..	42·1	41·1
30	49·4		..	..	47·2	46·2	47·0	45·9	42·5	..	42·9	41·7
31	..		46·2		..		46·3	45·9		43·3		40·9

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TABLE V.—MEAN, through the RANGE of YEARS, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of DECLINATION; exhibited separately for the DIFFERENT MONTHS.

1858 to 1863.

Hour. Greenwich Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	′	′	′	′	′	′	′	′	′	′	′	′
0	+ 3·8	+ 4·4	+ 6·8	+ 6·8	+ 6·5	+ 5·4	+ 4·6	+ 6·7	+ 7·0	+ 5·9	+ 4·0	+ 3·2
1	+ 4·0	+ 5·3	+ 7·7	+ 8·3	+ 6·9	+ 6·6	+ 5·8	+ 7·6	+ 7·4	+ 6·5	+ 4·3	+ 3·5
2	+ 3·5	+ 5·0	+ 6·9	+ 7·5	+ 6·3	+ 6·6	+ 6·1	+ 6·8	+ 6·2	+ 5·9	+ 3·8	+ 3·2
3	+ 2·1	+ 3·6	+ 5·2	+ 5·3	+ 4·9	+ 5·4	+ 5·0	+ 4·6	+ 4·3	+ 4·0	+ 2·7	+ 2·3
4	+ 0·8	+ 1·9	+ 2·7	+ 3·0	+ 3·0	+ 3·7	+ 3·4	+ 2·4	+ 2·0	+ 2·1	+ 1·4	+ 1·2
5	+ 0·2	+ 0·9	+ 0·8	+ 0·8	+ 1·3	+ 1·8	+ 1·6	+ 0·1	+ 0·2	+ 0·6	+ 0·1	+ 0·3
6	− 0·1	− 0·2	− 0·7	− 0·8	− 0·2	+ 0·2	+ 0·3	− 1·4	− 0·9	− 0·8	− 0·4	− 0·1
7	− 0·6	− 0·8	− 1·7	− 1·6	− 1·1	− 0·7	− 0·4	− 1·7	− 1·8	− 1·4	− 1·1	− 0·8
8	− 1·6	− 1·6	− 2·1	− 1·8	− 1·4	− 0·9	− 0·5	− 1·7	− 2·1	− 2·1	− 2·1	− 1·8
9	− 2·2	− 2·5	− 2·4	− 1·9	− 1·3	− 0·9	− 0·5	− 1·5	− 2·5	− 3·0	− 2·6	− 2·6
10	− 2·7	− 2·9	− 2·4	− 2·1	− 1·5	− 0·9	− 0·7	− 1·7	− 2·8	− 3·1	− 2·5	− 3·0
11	− 2·3	− 3·0	− 2·4	− 2·4	− 1·6	− 0·9	− 1·0	− 1·7	− 2·6	− 3·2	− 2·4	− 2·6
12	− 2·0	− 2·7	− 2·3	− 2·2	− 1·5	− 1·1	− 1·2	− 1·8	− 2·2	− 2·7	− 2·2	− 2·1
13	− 1·3	− 2·0	− 2·1	− 1·9	− 1·3	− 1·0	− 1·2	− 1·5	− 2·2	− 2·0	− 1·3	− 1·5
14	− 0·9	− 1·3	− 1·8	− 1·7	− 1·4	− 1·1	− 1·1	− 1·5	− 1·8	− 1·5	− 0·9	− 1·1
15	− 0·8	− 1·0	− 1·8	− 1·5	− 1·8	− 1·5	− 1·1	− 1·6	− 2·0	− 1·3	− 0·5	− 0·3
16	− 0·6	− 0·8	− 2·0	− 1·5	− 2·3	− 2·2	− 1·8	− 2·1	− 1·9	− 0·8	− 0·4	− 0·1
17	− 0·5	− 0·6	− 2·0	− 1·7	− 3·2	− 3·4	− 3·0	− 2·7	− 1·9	− 0·5	− 0·2	+ 0·1
18	− 0·3	− 0·6	− 2·1	− 2·4	− 3·9	− 4·3	− 4·0	− 3·3	− 2·2	− 0·4	− 0·4	+ 0·1
19	− 0·2	− 0·8	− 2·7	− 3·8	− 4·5	− 5·2	− 4·5	− 3·8	− 2·7	− 1·3	− 0·3	0·0
20	− 0·6	− 1·3	− 3·5	− 4·7	− 4·3	− 4·7	− 4·4	− 3·7	− 3·1	− 2·5	− 0·7	− 0·2
21	− 0·5	− 1·5	− 2·8	− 3·4	− 2·6	− 3·2	− 3·0	− 2·0	− 1·4	− 2·1	− 1·2	− 0·5
22	+ 0·6	0·0	+ 0·2	0·0	+ 0·5	− 0·4	− 0·8	+ 1·1	+ 1·8	+ 0·2	+ 0·1	+ 0·5
23	+ 2·4	+ 2·3	+ 3·9	+ 3·7	+ 4·1	+ 3·1	+ 2·3	+ 4·4	+ 5·0	+ 3·7	+ 2·5	+ 2·4

TABLE VI.—MEAN, through the RANGE of MONTHS, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of DECLINATION; exhibited separately for the DIFFERENT YEARS.

January to December.

Hour. Greenwich Mean Soiar Time.	1858.	1859.	1860.	1861.	1862.	1863.	Mean of Years.	Equivalent in Terms of Horizontal Force.
	′	′	′	′	′	′	′	
0	+ 5·3	+ 5·6	+ 6·2	+ 5·5	+ 4·6	+ 5·3	+ 5·42	+ 0·00157
1	+ 5·9	+ 6·8	+ 7·0	+ 6·2	+ 5·1	+ 5·9	+ 6·15	+ 178
2	+ 5·5	+ 6·4	+ 6·5	+ 5·8	+ 4·5	+ 5·3	+ 5·67	+ 164
3	+ 3·9	+ 4·9	+ 4·6	+ 4·3	+ 3·1	+ 3·7	+ 4·08	+ 118
4	+ 2·1	+ 2·9	+ 2·4	+ 2·5	+ 1·9	+ 2·0	+ 2·30	+ 67
5	+ 0·6	+ 1·1	+ 0·7	+ 0·9	+ 0·7	+ 0·4	+ 0·73	+ 21
6	− 0·6	− 0·3	− 0·4	− 0·3	− 0·2	− 0·7	− 0·42	− 12
7	− 1·2	− 1·0	− 1·0	− 1·3	− 0·9	− 1·4	− 1·13	− 33
8	− 1·8	− 1·5	− 1·5	− 1·8	− 1·4	− 1·9	− 1·65	− 48
9	− 2·1	− 1·9	− 1·8	− 2·1	− 1·7	− 2·5	− 2·02	− 59
10	− 2·2	− 2·1	− 1·9	− 2·4	− 1·8	− 2·7	− 2·18	− 63
11	− 2·2	− 2·1	− 2·1	− 2·3	− 1·7	− 2·5	− 2·15	− 62
12	− 1·9	− 1·9	− 1·9	− 2·0	− 1·9	− 2·4	− 2·00	− 58
13	− 1·4	− 1·4	− 1·8	− 1·5	− 1·5	− 2·1	− 1·62	− 47
14	− 1·2	− 1·4	− 1·6	− 1·2	− 1·1	− 1·5	− 1·33	− 39
15	− 1·1	− 1·4	− 1·5	− 1·2	− 1·3	− 1·2	− 1·28	− 37
16	− 1·2	− 1·3	− 1·9	− 1·3	− 1·4	− 1·1	− 1·37	− 40
17	− 1·4	− 1·8	− 2·3	− 1·5	− 1·5	− 1·2	− 1·62	− 47
18	− 1·7	− 2·4	− 2·7	− 2·0	− 1·7	− 1·3	− 1·97	− 57
19	− 2·2	− 3·2	− 3·2	− 2·6	− 2·0	− 1·5	− 2·45	− 71
20	− 2·5	− 3·7	− 3·4	− 3·0	− 2·3	− 1·9	− 2·80	− 81
21	− 1·8	− 2·9	− 2·6	− 2·1	− 1·4	− 1·2	− 2·00	− 58
22	+ 0·3	− 0·3	0·0	+ 0·2	+ 0·6	+ 1·0	+ 0·30	+ 9
23	+ 3·3	+ 3·1	+ 3·5	+ 3·3	+ 3·0	+ 3·6	+ 3·30	+ 96

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REDUCTIONS OF MAGNETIC HORIZONTAL FORCE REFERRED TO THE SUN'S PLACE.

TABLE VII.—MEAN HORIZONTAL MAGNETIC FORCE (diminished by a Constant of 0·8850 nearly) on each ASTRONOMICAL DAY, as deduced from the Mean of Twenty-four Hourly Measures of Ordinates of the Photographic Register on that Day, each corrected for Temperature.

1858.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	0·1247	..	0·1253	0·1276	0·1305	..	0·1212	0·1228	0·1243	0·1253	0·1241
2	..	·1240	0·1222	·1262	·1274	·1293	..	·1217	·1233	·1245	·1264	·1246
3	0·1225	·1233	·1226	..	·1265	..	..	·1216	·1233	·1246	·1255	·1247
4	..	..	·1226	·1239	·1268	·1285	0·1207	·1217	·1234	·1254	·1257	..
5	..	·1232	·1223	·1238	·1261	..	·1209	·1211	·1227	·1256	·1262	·1220
6	..	·1225	·1229	·1239	..	·1248	·1207	..	·1227	·1246	·1252	·1236
7	..	·1232	·1240	·1239	·1273	·1250	·1212	·1212	·1232	·1245	·1252	·1239
8	..	·1224	·1240	·1250	·1276	..	·1214	·1217	·1224	·1248	·1250	·1240
9	·1219	..	·1234	..	·1279	..	·1214	·1223	·1224	·1244	·1252	·1245
10	..	·1223	·1231	·1207	·1286	·1228	·1211	·1227	·1226	·1250	·1253	·1238
11	..	·1218	..	·1218	·1293	·1234	..	·1225	..	·1248	·1250	·1235
12	·1224	·1223	·1227	·1223	..	..	·1213	·1215	·1217	·1250	..	·1237
13	..	·1224	·1208	·1226	·1243	..	·1213	·1218	·1226	·1246	·1241	·1227
14	·1232	·1228	..	·1230	·1248	..	·1196	·1242	·1222	·1245	·1243	·1235
15	..	·1211	·1215	·1250	·1225	·1264	·1180	·1232	·1225	·1247	·1229	·1241
16	..	·1204	·1216	·1263	·1236	·1288	·1227	·1225	·1227	·1236	·1230	·1249
17	·1231	·1202	·1221	·1262	·1241	..	·1200	·1215	·1234	·1237	..	·1259
18	·1226	·1223	·1228	·1252	·1250	·1271	·1201	·1229	·1235	·1240	·1227	·1250
19	·1226	·1228	·1225	·1258	·1275	·1254	·1205	·1227	..	·1229	·1223	·1251
20	..	·1228	·1231	·1273	·1279	·1263	·1204	·1226	·1229	·1236	·1232	·1252
21	..	·1235	·1240	·1265	·1299	·1263	·1212	..	·1227	·1234	·1239	·1249
22	·1247	·1235	·1239	·1291	·1306	·1287	·1217	·1223	·1226	·1239	·1237	·1241
23	·1254	·1231	·1250	·1304	..	..	..	·1225	·1226	·1238	·1244	..
24	·1262	·1235	·1254	·1315	·1276	·1261	·1219	·1222	·1241	·1247	·1238	·1233
25	..	·1243	·1278	·1313	·1263	·1279	·1217	·1219	..	·1252	·1236	·1249
26	·1250	·1243	·1280	·1292	·1277	·1289	·1209	·1213	·1244	·1255	·1226	·1251
27	·1248	·1245	·1271	·1275	·1265	·1324	·1219	·1218	·1246	..	·1237	·1252
28	·1246	·1247	·1256	·1262	·1271	·1329	·1213	·1216	·1251	·1246	·1247	·1249
29	·1239		·1252	·1259	·1264	·1319	·1202	·1226	·1246	·1249	·1241	·1241
30	·1239		·1271	·1274	..	·1309	·1204	·1222	·1235	..	·1244	..
31	·1240		·1269		..		..	..		·1254		·1233
												·1249
												·1251
												·1246
												·1246
												·1248
												·1248
												·1246

1859.

1	..	0·1030	0·1015	0·1029	0·1015	0·1036	0·1073	0·1023	..	0·1022	0·1031	..
2	..	·1031	·1020	·1034	·1008	·1040	·1064	·1033	..	·1014	·1042	..
3	..	·1038	·1020	..	·1012	..	·1060	·1029	..	·1025	·1043	..
4	..	·1035	·1018	..	·1016	..	·1042	·1045	..	..	·1046	..
5	..	..	·1020	·1039	·1015	..	..	·1044	0·0989	·1026	·1047	..
6	..	·1037	·1027	..	·1029	..	..	·1042	·1013	·1030	·1046	..
7	..	·1042	·1026	·1016	·1033	·1030	·1059	·1036	·1015	·1038	·1047	..
8	0·1028	·1037	·1022	·1038	·1030	..	·1068	·1032	·1024	·1042	·1048	..
9	·1038	..	·1024	..	..	·1019	..	·1043	·1017	·1042	·1050	..
10	·1015	·1014	·1023	·1021	·1047	·1030	·1052	..	·1018	·1043	·1043	..
11	·1019	·1018	·1036	..	..	·1029	..	·1026	·1022	..	·1039	..
12	·1027	·1022	·1039	·1026	·1029	·1037	·1028	·1024	..	..	·1018	..
13	·1035	·1027	·1035	·1022	·1043	·1025	..	·1023	·1015	..	·1027	..
14	..	·1029	·1033	..	·1049	·1036	·1043	·1030	·1019	..	·1040	..
15	..	·1021	·1030	·1021	·1055	·1031	·1027	·1030	·1023	..	·1048	..
16	·1023	·1024	·1020	..	·1056	·1035	·1037	·1023	·1020	·1024	..	0·1032
17	·1028	·1023	·1021	·1032	·1049	·1036	·1025	..	·1014	..	·1036	..
18	·1024	·1029	·1009	·1023	·1041	·1035	..	·1031	·1022	..	·1034	..
19	·1031	..	·1016	·1013	..	·1047	·1035	..	..	·1011	·1043	·1036
20	·1035	·1041	·1031	·1021	..	..	..	·1021	·1038	·1004	..	·1034
21	·1031	·1034	·1020	..	..	·1053	..	·1029	·1042	·1005	·1030	·1041
22	..	..	·1020	..	·1030	·1042	·1029	·1033	·1046	·1027	·1032	·1038
23	·1051	·1025	·1030	..	..	·1050	·1027	·1033	·1021	·1044	·1035	·1038
24	·1034	·1030	·1016	·1029	..	·1067	..	..	·1030	·1051	·1037	·1039
25	·1030	·1028	·1016	·1030	·1039	·1066	..	·1034	..	·1048	·1036	..
26	·1031	·1030	·1010	·1021	..	·1059	·1020	·1039	·1026	·1044	·1038	..
27	·1032	·1022	·1020	·1017	..	·1056	·1029	·1032	·1017	·1054	..	·1034
28	·1033		·1021	·1008	..	·1066	..	..	..	..	·1036	·1037
29	·1032		·1023	..	·1031	·1053	·1018	..	·1033	·1033	·1033	·1027
30	·1040		·1027	·1009	·1026	·1069	·1017	·1010	·1046	·1032	·1032	·1034
31	·1035		·1027		..		..	·1015	..			

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TABLE VIII.—MEAN HORIZONTAL MAGNETIC FORCE (diminished by a Constant 0·8850 nearly) IN EACH MONTH, as deduced from the Mean of the MEAN HOURLY DETERMINATIONS in each Month (Table IX); and MEAN HORIZONTAL MAGNETIC FORCE in each Year, as deduced from the Mean of the MEAN MONTHLY DETERMINATIONS; all corrected for Temperature: showing the apparent Monthly Change of Horizontal Force in each Year.

Month.	1858.	1859.	1860.	1861.	1862.	1863.	Mean for the Four Years 1858, 1859, 1862, and 1863.	Mean, corrected for Secular Variation, 0·0017 annually.
January	0·1236	0·1031	0·1008	0·1074	0·1215	0·1207	0·1172	0·1172
February	·1229	·1029	·1023	·1058	·1235	·1211	·1176	·1175
March	·1239	·1023	·1000	·1057	·1261	·1230	·1188	·1185
April	·1258	·1024	·1001	·1071	·1279	·1240	·1200	·1196
May	·1269	·1033	·1064	·1175	·1248	·1253	·1201	·1195
June	·1274	·1043	·1100	·1291	·1250	·1216	·1196	·1189
July	·1212	·1038	·1088	..	·1241	·1231	·1181	·1172
August	·1222	·1031	·1085	·1193	·1235	·1235	·1181	·1171
September	·1232	·1024	·1079	·1197	·1239	·1236	·1183	·1172
October	·1245	·1031	·1094	·1215	·1205	·1237	·1180	·1167
November	·1244	·1039	·1105	·1218	·1206	·1236	·1181	·1167
December	·1243	·1038	·1117	·1220	·1220	·1231	·1183	·1167
Means	0·1242	0·1032	..	..	0·1236	0·1230	..	..

TABLE IX.—MEAN MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE (diminished by a Constant 0·8850 nearly), corrected for Temperature, at every HOUR of the DAY; obtained by taking the MEAN of all the DETERMINATIONS at the same HOUR of the DAY through each MONTH.

1858.

Hour. Greenwich Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·1227	0·1216	0·1223	0·1242	0·1259	0·1254	0·1199	0·1211	0·1217	0·1229	0·1232	0·1233
1	·1226	·1218	·1227	·1244	·1260	·1258	·1200	·1213	·1222	·1230	·1232	·1236
2	·1226	·1219	·1231	·1251	·1263	·1262	·1204	·1215	·1224	·1234	·1233	·1237
3	·1228	·1220	·1233	·1254	·1267	·1265	·1208	·1216	·1225	·1237	·1234	·1237
4	·1231	·1222	·1235	·1258	·1270	·1272	·1210	·1217	·1229	·1240	·1236	·1238
5	·1234	·1224	·1237	·1259	·1275	·1279	·1214	·1220	·1230	·1241	·1238	·1239
6	·1234	·1226	·1237	·1260	·1277	·1282	·1218	·1223	·1234	·1246	·1241	·1239
7	·1234	·1229	·1238	·1262	·1279	·1284	·1218	·1224	·1235	·1247	·1243	·1240
8	·1235	·1228	·1240	·1263	·1276	·1282	·1216	·1225	·1236	·1249	·1243	·1242
9	·1235	·1230	·1241	·1263	·1275	·1282	·1215	·1226	·1237	·1248	·1244	·1244
10	·1236	·1232	·1243	·1265	·1276	·1284	·1214	·1226	·1237	·1248	·1247	·1244
11	·1238	·1233	·1246	·1265	·1275	·1282	·1216	·1227	·1237	·1251	·1247	·1246
12	·1240	·1232	·1247	·1264	·1274	·1282	·1216	·1228	·1239	·1252	·1249	·1246
13	·1240	·1233	·1245	·1264	·1273	·1284	·1218	·1229	·1240	·1251	·1248	·1247
14	·1239	·1236	·1246	·1263	·1275	·1285	·1219	·1229	·1240	·1252	·1250	·1247
15	·1242	·1237	·1248	·1264	·1274	·1285	·1220	·1229	·1242	·1253	·1251	·1249
16	·1243	·1237	·1250	·1265	·1275	·1286	·1223	·1229	·1242	·1254	·1253	·1250
17	·1244	·1239	·1249	·1267	·1275	·1285	·1222	·1228	·1241	·1256	·1254	·1252
18	·1247	·1240	·1248	·1266	·1272	·1278	·1219	·1226	·1239	·1256	·1255	·1253
19	·1246	·1242	·1244	·1263	·1267	·1272	·1213	·1223	·1237	·1253	·1252	·1251
20	·1246	·1239	·1241	·1259	·1263	·1267	·1208	·1218	·1232	·1247	·1250	·1249
21	·1240	·1232	·1232	·1251	·1258	·1260	·1205	·1214	·1224	·1239	·1245	·1246
22	·1235	·1224	·1227	·1244	·1254	·1254	·1196	·1211	·1217	·1233	·1238	·1240
23	·1226	·1218	·1222	·1241	·1255	·1252	·1193	·1211	·1216	·1230	·1233	·1236

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TABLE IX.—MEAN MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE at EVERY HOUR of the DAY—*continued.*

1859.

Hour. Greenwich Mean Solar Time	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·1017	0·1012	0·1004	0·1001	0·1019	0·1028	0·1024	0·1017	0·1004	0·1013	0·1024	0·1026
1	·1022	·1016	·1008	·1007	·1025	·1032	·1025	·1021	·1011	·1018	·1024	·1031
2	·1025	·1021	·1012	·1017	·1027	·1036	·1033	·1023	·1014	·1020	·1026	·1030
3	·1025	·1023	·1017	·1023	·1033	·1042	·1038	·1027	·1018	·1024	·1029	·1031
4	·1025	·1025	·1019	·1028	·1037	·1045	·1039	·1030	·1022	·1028	·1032	·1033
5	·1026	·1026	·1021	·1029	·1039	·1050	·1041	·1030	·1023	·1031	·1036	·1034
6	·1028	·1027	·1023	·1029	·1039	·1050	·1043	·1033	·1027	·1034	·1037	·1037
7	·1031	·1031	·1025	·1032	·1039	·1052	·1045	·1035	·1029	·1034	·1036	·1037
8	·1031	·1029	·1026	·1031	·1038	·1052	·1045	·1036	·1031	·1035	·1039	·1036
9	·1031	·1030	·1027	·1030	·1036	·1050	·1045	·1037	·1031	·1037	·1042	·1036
10	·1033	·1030	·1027	·1029	·1038	·1049	·1044	·1037	·1032	·1039	·1042	·1037
11	·1034	·1031	·1027	·1030	·1038	·1049	·1044	·1038	·1032	·1038	·1043	·1037
12	·1036	·1033	·1029	·1032	·1038	·1049	·1044	·1037	·1032	·1037	·1043	·1037
13	·1036	·1034	·1029	·1030	·1039	·1050	·1045	·1038	·1032	·1038	·1045	·1038
14	·1037	·1035	·1029	·1031	·1039	·1051	·1046	·1039	·1032	·1038	·1047	·1041
15	·1038	·1038	·1032	·1033	·1039	·1051	·1046	·1039	·1032	·1038	·1048	·1041
16	·1039	·1040	·1032	·1033	·1040	·1050	·1049	·1039	·1034	·1038	·1049	·1045
17	·1041	·1041	·1033	·1033	·1038	·1051	·1046	·1039	·1034	·1039	·1050	·1045
18	·1041	·1041	·1033	·1034	·1037	·1047	·1045	·1039	·1037	·1040	·1050	·1048
19	·1039	·1041	·1031	·1029	·1032	·1040	·1037	·1036	·1032	·1040	·1049	·1048
20	·1037	·1036	·1027	·1023	·1027	·1033	·1031	·1032	·1027	·1039	·1046	·1046
21	·1031	·1028	·1019	·1013	·1022	·1028	·1025	·1024	·1020	·1034	·1038	·1045
22	·1025	·1020	·1009	·1003	·1016	·1027	·1021	·1017	·1012	·1024	·1029	·1039
23	·1022	·1016	·1005	·0999	·1017	·1028	·1021	·1014	·1003	·1016	·1025	·1033
									·0999	·1013		·1028

1860.

0	0·0996	0·1011	0·0983	0·0977	0·1054	0·1088	0·1069	0·1074	0·1063	0·1078	0·1094	0·1109
1	·0994	·1012	·0991	·0983	·1055	·1092	·1079	·1079	·1072	·1083	·1096	·1112
2	·0997	·1015	·0989	·0992	·1066	·1099	·1086	·1085	·1076	·1086	·1096	·1113
3	·0998	·1016	·1000	·0999	·1064	·1103	·1092	·1089	·1078	·1086	·1097	·1111
4	·1000	·1016	·1002	·1003	·1069	·1107	·1094	·1091	·1079	·1090	·1100	·1113
5	·1003	·1018	·1001	·1010	·1075	·1111	·1095	·1092	·1082	·1093	·1103	·1115
6	·1005	·1019	·1003	·1009	·1076	·1114	·1096	·1095	·1083	·1096	·1104	·1114
7	·1007	·1021	·1003	·1009	·1072	·1113	·1097	·1096	·1085	·1097	·1105	·1116
8	·1008	·1023	·1006	·1009	·1070	·1111	·1097	·1095	·1086	·1098	·1104	·1116
9	·1007	·1023	·1004	·1008	·1069	·1106	·1097	·1095	·1088	·1097	·1107	·1116
10	·1009	·1023	·1004	·1009	·1069	·1105	·1095	·1093	·1087	·1097	·1107	·1117
11	·1011	·1024	·1005	·1008	·1067	·1105	·1095	·1094	·1087	·1099	·1109	·1118
12	·1011	·1027	·1006	·1007	·1066	·1105	·1095	·1095	·1088	·1101	·1108	·1117
13	·1013	·1028	·1008	·1008	·1066	·1105	·1096	·1092	·1089	·1100	·1109	·1118
14	·1013	·1027	·1007	·1007	·1068	·1104	·1095	·1091	·1087	·1101	·1110	·1119
15	·1015	·1029	·1009	·1009	·1068	·1104	·1094	·1091	·1085	·1101	·1110	·1119
16	·1016	·1029	·1009	·1009	·1068	·1105	·1093	·1091	·1086	·1102	·1112	·1123
17	·1019	·1031	·1009	·1009	·1067	·1104	·1092	·1089	·1086	·1103	·1114	·1125
18	·1019	·1034	·1009	·1010	·1063	·1100	·1087	·1086	·1081	·1102	·1114	·1124
19	·1019	·1035	·1006	·1007	·1057	·1094	·1079	·1079	·1078	·1100	·1113	·1124
20	·1018	·1033	·1001	·1000	·1052	·1086	·1077	·1073	·1070	·1095	·1111	·1123
21	·1011	·1026	·0991	·0991	·1048	·1083	·1071	·1066	·1062	·1088	·1106	·1119
22	·1002	·1019	·0981	·0981	·1045	·1079	·1065	·1062	·1058	·1082	·1101	·1115
23	·0997	·1013	·0979	·0979	·1050	·1083	·1066	·1062	·1058	·1079	·1095	·1112

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TABLE XI.—MEAN, through the Range of Months, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of HORIZONTAL FORCE; exhibited separately for THE DIFFERENT YEARS.

January to December.

Hour. Greenwich Mean Solar Time.	1858.	1859.	1860.	1861.	1862.	1863.	Mean, 1858 to 1863.
0	− 0·00134	− 0·00162	− 0·00140	− 0·00127	− 0·00090	− 0·00090	− 0·00124
1	− 114	− 120	− 97	− 104	− 39	− 52	− 88
2	− 87	− 83	− 53	− 74	+ 6	− 7	− 50
3	− 66	− 45	− 26	− 48	+ 37	+ 27	− 20
4	− 37	− 17	0	− 27	+ 48	+ 37	+ 1
5	− 11	+ 2	+ 28	− 3	+ 53	+ 57	+ 21
6	+ 12	+ 19	+ 42	+ 9	+ 56	+ 71	+ 35
7	+ 25	+ 34	+ 47	+ 12	+ 55	+ 67	+ 40
8	+ 27	+ 38	+ 49	+ 12	+ 48	+ 56	+ 38
9	+ 31	+ 41	+ 42	+ 14	+ 43	+ 47	+ 36
10	+ 41	+ 44	+ 43	+ 22	+ 38	− 42	+ 38
11	+ 50	+ 47	+ 49	+ 26	+ 37	+ 42	+ 42
12	+ 55	+ 53	+ 49	+ 36	+ 37	+ 33	+ 44
13	+ 58	+ 61	+ 56	+ 46	+ 24	+ 25	+ 45
14	+ 65	+ 68	+ 54	+ 54	+ 21	+ 23	+ 48
15	+ 76	+ 81	+ 58	+ 65	+ 27	+ 18	+ 54
16	+ 87	+ 88	+ 66	+ 81	+ 26	+ 28	+ 63
17	+ 91	+ 94	+ 70	+ 95	+ 27	+ 27	+ 67
18	+ 80	+ 83	+ 54	+ 92	+ 11	+ 8	+ 55
19	+ 50	+ 48	+ 22	+ 60	− 24	− 19	+ 23
20	+ 13	− 1	− 21	+ 20	− 68	− 60	− 19
21	− 47	− 73	− 85	− 44	− 112	− 103	− 77
22	− 108	− 140	− 145	− 102	− 133	− 129	− 126
23	− 142	− 164	− 159	− 125	− 121	− 123	− 139

REDUCTIONS OF MAGNETIC VERTICAL FORCE REFERRED TO THE SUN'S PLACE.

TABLE XII.—MEAN VERTICAL MAGNETIC FORCE (diminished by a Constant 0·9600 nearly) on each ASTRONOMICAL DAY, as deduced from the Mean of Twenty-four Hourly Measures of Ordinates of the Photographic Register on that Day; each corrected for Temperature.

1858.

Days of the Month.	January.	February.	[March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	..	..	0·0452	0·0424	0·0583	..	0·0530	0·0492	0·0476	0·0427	0·0487
2	..	0·0387	0·0399	..	·0444	·0558	0·0479	..	·0460	·0499	·0465	·0482
3	0·0366	·0405	·0400	..	·0456	·0567	..	·0527	·0518	·0482	·0455	·0449
4	·0337	·0453	..	·0469	·0448	·0541	·0492	·0538	·0542	..	·0461	..
5	..	·0455	·0424	·0441	·0457	..	·0510	·0550	..	·0482	·0482	·0435
6	..	·0454	..	·0432	..	·0507	·0498	..	·0458	·0452	·0495	·0510
7	..	·0433	·0397	·0427	·0459	..	·0506	·0520	..	·0479	·0478	·0466
8	..	·0418	·0411	·0441	·0462	·0535	·0477	·0524	·0498	·0484	·0442	·0434
9	·0445	·0412	·0413	..	·0465	..	·0473	·0533	·0455	..	·0466	·0433
10	·0422	·0424	·0427	·0446	·0479	..	·0464	·0548	·0462	·0464	·0432	·0477
11	·0443	·0430	..	·0439	..	·0542	..	·0552	..	·0473	..	..
12	·0408	·0425	·0395	·0453	..	..	..	..	..	·0433	·0457	·0460
13	·0430	·0437	·0433	·0451	..	·0559	·0547	·0542	..	·0499	·0428	..
14	·0402	·0455	..	·0456	..	..	·0538	·0524	..	·0487	·0444	·0488
15	..	·0436	·0434	·0500	·0505	..	·0573	·0519	..	·0505	·0483	·0454
16	..	·0439	·0481	·0512	·0511	·0579	..	..	..	·0502	·0439	·0443
17	·0441	·0447	·0487	·0469	·0500	..	..	..	..	·0526	·0456	·0447
18	·0413	..	·0483	·0459	·0524	·0476	·0528	·0542	..	·0488	·0453	·0468
19	·0436	·0412	·0482	·0475	·0518	..	·0523	·0541	..	·0446	·0460	·0477
20	..	·0428	·0488	·0482	·0523	·0503	·0519	·0538	..	·0486	·0417	·0470
21	·0421	·0403	·0465	·0499	·0529	..	·0526	·0473	..	·0473	·0445	·0483
22	·0419	..	·0482	·0502	·0533	·0552	..	·0495	..	·0489	·0439	·0509
23	·0417	·0407	..	·0489	..	..	..	·0520	..	..	·0456	·0494
24	·0402	·0442	..	·0484	·0503	..	·0506	·0513	..	·0477	·0407	·0502
25	·0397	·0412	·0460	·0463	·0513	·0513	·0509	·0529	..	·0476	·0428	·0473
26	·0411	·0401	..	·0461	·0510	·0538	·0512	·0465	·0477	·0496	·0487	..
27	·0423	..	·0442	·0456	·0524	·0535	·0515	·0474	·0490	..	·0495	..
28	·0433	·0417	·0457	·0477	·0533	·0509	..	·0482	·0491	·0474	·0512	..
29	·0425		·0476	·0466	·0553	·0508	..	·0480	·0500	·0463	·0487	..
30	·0432		·0462	·0460	..	·0515	·0508	·0492	·0531	·0441	·0502	..
31	·0462		·0469		..		..	·0482		·0455		..

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TABLE XII.—MEAN VERTICAL MAGNETIC FORCE on each ASTRONOMICAL DAY—*continued.*

1859.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	..	..	..	0·0321	..	0·0443	0·0389	..	0·0540	0·0380	0·0389
2	..	..	..	..	·0292	..	·0436	·0368	..	·0581	·0387	·0387
3	..	..	..	..	·0326	..	·0444	·0376	..	..	·0398	..
4	..	..	..	..	·0381	..	·0447	·0409	..	·0424	·0392	·0380
5	..	..	..	..	·0383	..	·0444	·0347	0·0349	·0399	..	·0350
6	0·0438	..	..	..	·0389	..	·0489	·0337	·0375	·0402	·0388	·0376
7	·0434	..	..	..	·0392	0·0272	·0511	·0354	·0332	..	·0392	·0360
8	·0424	..	..	..	·0432	..	..	·0378	·0349	·0420	..	·0356
9	·0414	..	..	..	..	..	·0463	·0392	·0375	·0383	·0415	·0378
10	..	..	..	..	..	..	·0450	·0390	·0340	·0374	·0370	·0365
11	·0455	..	..	..	·0265	·0244	..	·0361	·0331	..	·0353	·0404
12	·0472	..	..	..	·0302	·0265	·0491	·0417	..	..	·0396	·0334
13	·0456	..	..	..	·0310	·0272	·0462	·0447	·0367	..	·0409	..
14	·0434	..	..	..	·0311	·0260	·0369	·0461	·0323	·0386	·0357	·0369
15	·0423	..	..	..	·0263	·0322	·0362	·0464	·0318	·0380	..	·0352
16	·0414	..	..	..	·0247	·0343	·0381	·0392	·0317	·0395	..	·0329
17	·0419	..	..	..	·0239	·0315	·0344	·0409	·0337	..	..	..
18	·0454	..	..	..	·0232	..	·0369	·0429	·0331	..	·0351	..
19	·0471	..	..	..	..	..	·0363	·0500	..	·0398	..	·0347
20	·0440	..	..	0·0405	..	·0303	·0330	..	..	·0417	·0409	..
21	·0428	..	..	..	..	..	..	·0569	·0371	·0416	..	..
22	·0454	..	..	·0412	·0254	..	..	·0521	·0332	·0364	·0350	·0361
23	·0408	..	..	·0408	..	..	..	·0565	·0348	·0401	..	·0357
24	·0412	..	..	·0457	·0369	·0519	·0367	..	·0462	·0375	..	·0371
25	·0450	..	..	·0443	·0409	·0536	·0373	..	·0513	·0349	..	·0387
26	·0464	..	..	..	..	·0622	..	·0483	·0523	·0370	·0415	·0396
27	·0454	..	..	·0371	..	..	..	·0412	·0445	·0406	·0431	..
28	·0470	..	..	·0327	·0328	·0558	·0486	..	..	..	·0400	·0401
29	·0424		..	..	·0322	·0431	·0487	..	..	·0392	·0374	·0389
30	..		..	·0350	..	·0458	·0424	·0345	·0459	..	·0385	·0380
31	..		..		..		·0397	·0311		..		..

1860.

1	..	0·0402	0·0364	0·0303	..	0·0287	..	..	0·0575	0·0303	0·0381	0·0376
2	..	·0396	·0389	·0288	..	..	..	..	·0573	·0353	·0367	·0403
3	..	·0377	·0339	·0309	..	·0255	..	..	·0561	..	·0365	·0383
4	0·0410	·0365	·0362	·0355	..	..	0·0418	..	..	·0372	·0374	·0363
5	·0421	·0376	·0331	·0360	..	·0267	..	..	·0397	·0362	..	·0357
6	·0414	·0403	·0323	·0377	..	..	·0429	0·0537	..	·0375	·0336	..
7	..	·0390	·0349	·0393	..	·0283	·0464	..	·0389	·0387	·0354	·0350
8	·0373	..	·0337	·0345	..	·0284	·0407	·0504	·0394	..	..	·0350
9	·0367	·0423	·0311	..	..	·0326	·0389	..	·0326	·0374	..	·0387
10	·0374	·0395	·0298	·0254	..	·0322	·0372	..	..	..	·0382	·0361
11	·0385	·0361	..	·0225	..	..	·0403	..	·0331	·0343	·0394	·0368
12	·0411	·0366	·0323	·0259	..	·0320	·0385	..	·0366	·0330	·0355	·0354
13	·0406	·0361	·0342	..	·0477	·0289	·0395	·0515	·0403	·0313	·0319	..
14	·0385	·0350	·0359	·0292	·0484	·0309	·0406	·0543	·0364	·0333	·0333	·0367
15	·0421	·0348	·0344	·0255	·0493	·0321	·0426	·0523	·0397	·0345	·0349	·0382
16	·0415	·0379	·0344	·0292	..	·0342	..	..	·0361	·0368	·0368	·0388
17	·0418	·0378	·0352	·0317	·0492	·0389	·0394	·0503	·0385	..	..	·0381
18	·0403	..	·0361	..	..	·0337	·0387	·0500	..	·0362	·0397	·0386
19	·0387	·0393	·0369	..	·0540	·0387	·0396	·0486	..	·0358	..	·0358
20	·0395	·0342	·0363	·0244	..	·0386	·0384	·0530	·0289	·0340	·0318	·0357
21	·0435	·0352	·0363	·0230	..	·0388	·0368	·0556	·0339	·0354	·0331	·0343
22	..	·0375	·0369	·0237	·0475	·0367	·0345	·0564	·0343	..	·0346	·0333
23	·0384	·0373	·0377	·0206	·0476	·0370	·0371	·0512	·0316	·0366	·0377	·0357
24	·0384	·0360	·0297	·0238	·0462	·0370	..	·0526	·0239	·0349	·0364	·0376
25	·0406	·0356	·0296	·0232	·0406	·0372	·0332	..	..	·0368	·0399	..
26	·0412	·0356	·0310	·0256	..	·0355	·0367	·0597	·0235	·0380	·0378	·0325
27	·0399	·0374	·0317	·0260	..	·0383	·0448	..	·0278	·0393	·0340	·0324
28	·0419	·0386	..	..	·0330	·0372	·0488	·0568	·0303	·0396	·0330	·0352
29	·0442	·0368	..	·0297	·0279	..	·0493	·0595	·0313	·0387	·0325	·0392
30	·0389		·0365·	..	·0287	..	·0497	·0588	·0320	·0409	·0356	·0370
31	·0386		·0329		·0326		·0520	·0562		·0401		·0341
										·0419		

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TABLE XIV.—MEAN MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE (diminished by a Constant 0·9600 nearly) corrected for Temperature, at every HOUR of the DAY; obtained by taking the Mean of all the Determinations at the same Hour of the Day through each Month.

1858.

Hour. Greenwich Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·0429	0·0437	0·0442	0·0461	0·0497	0·0533	0·0522	0·0535	0·0503	0·0494	0·0476	0·0478
1	·0424	·0437	·0441	·0461	·0496	·0529	·0511	·0526	·0495	·0493	·0476	·0477
2	·0418	·0433	·0441	·0459	·0490	·0525	·0503	·0513	·0491	·0485	·0474	·0478
3	·0410	·0428	·0440	·0462	·0486	·0527	·0499	·0505	·0488	·0478	·0466	·0476
4	·0402	·0422	·0439	·0463	·0487	·0529	·0500	·0503	·0486	·0474	·0457	·0477
5	·0399	·0420	·0438	·0463	·0488	·0528	·0501	·0501	·0483	·0469	·0450	·0474
6	·0397	·0420	·0438	·0464	·0491	·0528	·0501	·0499	·0479	·0467	·0445	·0470
7	·0397	·0419	·0437	·0463	·0488	·0526	·0499	·0497	·0477	·0464	·0441	·0469
8	·0397	·0419	·0436	·0460	·0486	·0526	·0495	·0494	·0475	·0461	·0441	·0468
9	·0397	·0419	·0437	·0459	·0486	·0528	·0491	·0493	·0476	·0459	·0440	·0467
10	·0396	·0420	·0437	·0461	·0485	·0531	·0491	·0494	·0477	·0460	·0441	·0466
11	·0397	·0419	·0438	·0462	·0486	·0537	·0495	·0500	·0479	·0461	·0442	·0466
12	·0398	·0421	·0442	·0465	·0490	·0544	·0499	·0507	·0481	·0462	·0444	·0466
13	·0400	·0423	·0444	·0469	·0494	·0550	·0508	·0516	·0483	·0466	·0447	·0467
14	·0401	·0426	·0447	·0469	·0501	·0554	·0517	·0526	·0487	·0471	·0451	·0468
15	·0404	·0429	·0450	·0470	·0509	·0555	·0523	·0533	·0489	·0477	·0455	·0470
16	·0407	·0432	·0452	·0469	·0513	·0553	·0529	·0537	·0491	·0483	·0459	·0471
17	·0408	·0434	·0453	·0468	·0513	·0549	·0532	·0540	·0494	·0487	·0463	·0472
18	·0409	·0436	·0454	·0468	·0512	·0546	·0533	·0540	·0495	·0490	·0467	·0473
19	·0410	·0436	·0454	·0466	·0511	·0545	·0532	·0541	·0496	·0493	·0469	·0474
20	·0410	·0435	·0453	·0465	·0509	·0545	·0532	·0541	·0497	·0494	·0471	·0475
21	·0411	·0435	·0452	·0462	·0508	·0544	·0532	·0539	·0497	·0493	·0473	·0476
22	·0413	·0434	·0449	·0462	·0507	·0542	·0534	·0540	·0496	·0493	·0472	·0476
23	·0417	·0435	·0447	·0463	·0504	·0536	·0531	·0540	·0498	·0496	·0475	·0476

1859.

0	0·0441	..	..	0·0418	0·0329	0·0387	0·0433	0·0430	0·0387	0·0424	0·0403	0·0391
1	·0439	..	..	·0414	·0332	·0386	·0427	·0434	·0392	·0418	·0405	·0388
2	·0439	..	..	·0415	·0333	·0385	·0422	·0431	·0391	·0419	·0404	·0387
3	·0442	..	..	·0411	·0323	·0380	·0415	·0424	·0385	·0413	·0400	·0385
4	·0441	..	..	·0409	·0313	·0373	·0410	·0418	·0381	·0411	·0393	·0380
5	·0439	..	..	·0404	·0308	·0369	·0409	·0419	·0375	·0408	·0384	·0372
6	·0439	..	..	·0402	·0311	·0363	·0410	·0422	·0372	·0404	·0380	·0365
7	·0438	..	..	·0398	·0311	·0365	·0409	·0422	·0370	·0399	·0377	·0362
8	·0440	..	..	·0393	·0312	·0362	·0409	·0423	·0367	·0396	·0375	·0358
9	·0440	..	..	·0386	·0312	·0364	·0406	·0424	·0367	·0393	·0374	·0356
10	·0441	..	..	·0384	·0310	·0363	·0406	·0424	·0367	·0394	·0372	·0354
11	·0442	..	..	·0383	·0310	·0364	·0407	·0425	·0369	·0392	·0372	·0353
12	·0442	..	..	·0382	·0313	·0365	·0410	·0427	·0369	·0393	·0371	·0351
13	·0441	..	..	·0382	·0316	·0365	·0416	·0430	·0370	·0393	·0372	·0353
14	·0441	..	..	·0383	·0321	·0367	·0422	·0434	·0375	·0395	·0374	·0354
15	·0440	..	..	·0387	·0328	·0371	·0429	·0438	·0378	·0397	·0376	·0357
16	·0440	..	..	·0392	·0336	·0367	·0436	·0444	·0381	·0400	·0377	·0361
17	·0438	..	..	·0399	·0343	·0372	·0439	·0439	·0384	·0403	·0380	·0364
18	·0438	..	..	·0405	·0346	·0377	·0440	·0441	·0386	·0406	·0382	·0367
19	·0438	..	..	·0408	·0344	·0378	·0439	·0449	·0388	·0409	·0385	·0370
20	·0438	..	..	·0410	·0340	·0378	·0436	·0448	·0390	·0411	·0388	·0373
21	·0439	..	..	·0409	·0335	·0375	·0434	·0445	·0391	·0412	·0392	·0375
22	·0441	..	..	·0408	·0329	·0380	·0431	·0437	·0392	·0416	·0395	·0379
23	·0442	..	..	·0408	·0329	·0385	·0427	·0438	·0390	·0419	·0399	·0385

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TABLE XIV.—MEAN MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE at every HOUR of the DAY—*continued.*

1860.

Hour. Greenwich Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·0422	0·0396	0·0358	0·0299	0·0427	0·0341	0·0423	0·0547	0·0378	0·0381	0·0375	0·0381
1	·0419	·0398	·0359	·0298	·0422	·0348	·0429	·0545	·0369	·0382	·0378	·0384
2	·0418	·0397	·0361	·0297	·0431	·0344	·0425	·0545	·0368	·0380	·0382	·0383
3	·0414	·0389	·0355	·0293	·0430	·0341	·0422	·0541	·0363	·0376	·0376	·0379
4	·0404	·0381	·0349	·0288	·0428	·0338	·0414	·0536	·0360	·0370	·0371	·0373
5	·0396	·0372	·0341	·0282	·0428	·0333	·0410	·0535	·0356	·0366	·0364	·0366
6	·0392	·0366	·0334	·0280	·0430	·0329	·0407	·0537	·0354	·0363	·0360	·0361
7	·0388	·0362	·0329	·0276	·0428	·0327	·0403	·0536	·0353	·0359	·0355	·0357
8	·0386	·0359	·0327	·0273	·0427	·0325	·0399	·0536	·0352	·0357	·0351	·0354
9	·0386	·0357	·0325	·0271	·0426	·0323	·0396	·0534	·0352	·0355	·0349	·0353
10	·0385	·0357	·0324	·0270	·0426	·0321	·0395	·0533	·0351	·0354	·0348	·0351
11	·0385	·0355	·0324	·0269	·0426	·0320	·0394	·0531	·0351	·0353	·0347	·0350
12	·0386	·0357	·0326	·0269	·0429	·0319	·0394	·0529	·0351	·0353	·0347	·0350
13	·0387	·0359	·0327	·0271	·0421	·0320	·0394	·0529	·0351	·0354	·0347	·0351
14	·0390	·0362	·0328	·0274	·0424	·0321	·0395	·0531	·0352	·0356	·0349	·0352
15	·0393	·0366	·0332	·0279	·0426	·0323	·0397	·0536	·0353	·0358	·0351	·0354
16	·0396	·0369	·0335	·0284	·0430	·0327	·0401	·0541	·0355	·0360	·0353	·0357
17	·0400	·0372	·0339	·0289	·0433	·0331	·0406	·0544	·0356	·0363	·0355	·0360
18	·0404	·0376	·0343	·0295	·0434	·0336	·0412	·0548	·0358	·0367	·0357	·0363
19	·0407	·0380	·0348	·0300	·0433	·0340	·0417	·0551	·0359	·0370	·0361	·0366
20	·0412	·0384	·0352	·0304	·0431	·0344	·0420	·0553	·0361	·0373	·0364	·0369
21	·0416	·0388	·0356	·0305	·0429	·0345	·0423	·0550	·0365	·0377	·0367	·0371
22	·0421	·0391	·0357	·0305	·0432	·0345	·0425	·0550	·0369	·0380	·0371	·0375
23	·0424	·0393	·0359	·0303	·0430	·0348	·0428	·0549	·0372	·0384	·0372	·0379

1861.

0	0·0373	0·0372	0·0366	0·0368	0·0386	0·0435	0·0427	0·0398	0·0346	0·0509	0·0510	0·0432
1	·0369	·0375	·0367	·0365	·0386	·0438	·0427	·0399	·0334	·0507	·0502	·0431
2	·0367	·0375	·0367	·0363	·0383	·0439	·0422	·0397	·0328	·0509	·0504	·0439
3	·0362	·0370	·0361	·0353	·0377	·0435	·0418	·0389	·0322	·0506	·0503	·0441
4	·0353	·0366	·0353	·0341	·0371	·0440	·0418	·0383	·0318	·0501	·0500	·0432
5	·0346	·0359	·0345	·0335	·0366	·0440	·0417	·0378	·0312	·0495	·0495	·0427
6	·0340	·0355	·0338	·0334	·0366	·0441	·0417	·0377	·0310	·0491	·0494	·0423
7	·0337	·0351	·0334	·0332	·0364	·0441	·0414	·0375	·0310	·0488	·0492	·0420
8	·0334	·0348	·0331	·0327	·0362	·0441	·0409	·0373	·0310	·0486	·0490	·0420
9	·0333	·0347	·0328	·0324	·0361	·0442	·0405	·0373	·0311	·0484	·0489	·0418
10	·0332	·0346	·0327	·0323	·0359	·0441	·0404	·0373	·0314	·0483	·0488	·0419
11	·0333	·0345	·0326	·0322	·0359	·0440	·0404	·0374	·0316	·0483	·0488	·0411
12	·0333	·0346	·0327	·0324	·0361	·0441	·0404	·0380	·0318	·0484	·0488	·0416
13	·0334	·0347	·0329	·0326	·0363	·0441	·0405	·0379	·0319	·0483	·0489	·0413
14	·0338	·0349	·0331	·0330	·0367	·0442	·0407	·0384	·0321	·0485	·0492	·0412
15	·0341	·0352	·0333	·0336	·0372	·0443	·0411	·0388	·0324	·0488	·0493	·0414
16	·0344	·0355	·0340	·0342	·0378	·0446	·0416	·0389	·0326	·0490	·0495	·0418
17	·0348	·0358	·0345	·0348	·0383	·0449	·0421	·0394	·0330	·0495	·0498	·0419
18	·0351	·0361	·0351	·0353	·0386	·0449	·0425	·0400	·0331	·0499	·0500	·0418
19	·0356	·0366	·0355	·0359	·0390	·0448	·0428	·0402	·0332	·0498	·0502	·0419
20	·0359	·0369	·0359	·0361	·0391	·0445	·0431	·0402	·0338	·0501	·0505	·0426
21	·0363	·0372	·0362	·0361	·0391	·0443	·0432	·0401	·0342	·0501	·0502	·0431
22	·0368	·0376	·0364	·0365	·0391	·0434	·0433	·0402	·0345	·0501	·0506	·0434
23	·0372	·0379	·0363	·0366	·0390	·0440	·0429	·0397	·0351	·0506	·0511	·0432

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REDUCTIONS OF MAGNETIC DECLINATION REFERRED TO THE MOON'S PLACE.

TABLE XVII.—MEAN LUNATION INEQUALITY of the WESTERN DECLINATION of the MAGNET, exhibited separately for the DIFFERENT YEARS; with the Mean of all the Years, corrected for the Daily Proportion of Secular Change of Western Declination.

Day of the Lunation.	1858.	1859.	1860.	1861.	1862.	1863.	Mean 1858 to 1863.	Mean corrected by Secular Variation −9′·2 annually.
	′	′	′	′	′	′	′	′
1	+ 0·4	− 0·6	+ 0·5	+ 1·0	− 0·2	+ 0·5	+ 0·27	− 0·10
2	+ 0·3	− 0·1	+ 0·6	+ 1·0	− 1·4	+ 0·4	+ 0·13	− 0·21
3	+ 0·6	+ 0·6	− 0·1	+ 0·4	+ 1·7	+ 0·5	+ 0·62	+ 0·30
4	+ 0·4	− 0·1	0·0	+ 3·4	− 0·2	− 0·4	+ 0·52	+ 0·23
5	− 0·1	− 0·3	+ 1·7	+ 4·2	+ 0·3	− 0·1	+ 0·95	+ 0·69
6	+ 0·6	− 1·4	+ 0·4	+ 3·1	+ 0·1	+ 0·4	+ 0·53	+ 0·30
7	− 0·1	+ 0·3	− 0·1	+ 2·0	+ 0·4	− 0·1	+ 0·40	+ 0·20
8	+ 0·7	+ 0·7	+ 0·3	+ 1·3	+ 0·1	0·0	+ 0·52	+ 0·35
9	− 0·4	+ 0·1	− 0·6	+ 1·6	− 0·3	− 0·1	+ 0·05	− 0·09
10	+ 0·7	+ 0·4	− 0·1	+ 2·7	− 1·3	− 0·8	+ 0·27	+ 0·16
11	− 0·5	+ 0·6	− 0·3	+ 0·9	− 0·3	− 0·2	+ 0·03	− 0·05
12	− 0·3	− 0·3	+ 0·8	+ 0·1	+ 0·5	− 0·5	+ 0·05	0·00
13	− 0·1	+ 0·2	+ 1·4	+ 0·1	− 0·4	− 0·5	+ 0·12	+ 0·09
14	+ 0·2	+ 0·2	+ 0·7	− 1·6	+ 0·4	+ 0·1	0·00	0·00
15	+ 0·3	+ 0·8	− 0·4	− 1·5	+ 0·6	− 0·1	− 0·05	− 0·05
16	+ 0·5	+ 0·1	− 0·3	− 1·3	+ 0·4	− 0·3	− 0·15	− 0·12
17	+ 0·6	+ 0·8	− 0·1	− 0·2	+ 0·6	− 0·4	+ 0·22	+ 0·27
18	− 0·6	+ 0·4	− 0·2	− 1·1	+ 0·4	− 0·4	− 0·25	− 0·17
19	+ 0·6	− 1·4	− 0·4	− 0·4	− 0·3	− 0·8	− 0·45	− 0·35
20	− 0·1	+ 0·5	− 0·8	− 2·0	− 0·5	− 0·3	− 0·53	− 0·40
21	− 0·6	− 0·2	− 0·2	− 0·6	− 0·6	+ 0·7	− 0·25	− 0·09
22	+ 0·2	+ 1·4	− 0·7	− 1·8	+ 1·0	+ 0·3	+ 0·07	+ 0·25
23	+ 0·1	+ 0·3	− 0·3	− 1·3	+ 0·9	+ 0·2	− 0·02	+ 0·19
24	− 0·8	− 1·5	− 0·3	− 1·2	− 0·1	+ 0·2	− 0·62	− 0·38
25	− 1·5	− 0·3	− 0·4	− 2·4	+ 0·1	0·0	− 0·75	− 0·48
26	− 0·9	− 1·3	− 0·3	− 1·5	− 1·3	+ 0·4	− 0·82	− 0·53
27	− 0·4	− 0·6	− 0·7	− 1·7	− 1·0	+ 0·6	− 0·63	− 0·31
28	− 0·1	+ 0·5	− 0·5	− 1·9	0·0	+ 0·2	− 0·30	+ 0·04
29	+ 0·6	− 1·0	+ 0·7	....	+ 1·0	− 0·3	+ 0·20	+ 0·57

TABLE XVIII.—MEAN LUNATION DETERMINATION of the WESTERN DECLINATION of the MAGNET at every LUNAR HOUR of the LUNAR DAY; obtained by taking the Means of all the Determinations at the same Lunar Hour through the Lunation.

1858.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 15. 0. 27	February. d h m 14. 0. 44	March. d h m 15. 0. 8	April. d h m 14. 0. 23	May. d h m 13. 0. 1	June. d h m 12. 0. 58	July. d h m 11. 0. 46	August. d h m 9. 0. 24	September. d h m 8. 0. 39	October. d h m 7. 0. 1	November. d h m 6. 0. 16	December. d h m 6. 0. 43	Mean.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	33·8	33·7	33·9	33·1	28·8	28·4	29·2	28·6	27·4	26·4	30·3	28·4	30·2
1	34·4	33·2	34·0	32·9	28·8	28·3	29·2	28·2	27·0	26·4	30·0	28·5	30·1
2	34·5	33·8	33·8	33·0	28·6	28·0	29·0	28·4	27·3	26·9	29·8	28·5	30·1
3	34·2	33·9	33·3	32·7	28·3	28·0	28·7	28·8	27·1	26·9	29·8	28·9	30·0
4	33·9	33·8	32·6	32·2	28·5	27·7	28·4	28·6	27·5	26·9	30·2	28·4	29·9
5	33·8	33·8	32·9	31·5	28·8	28·3	28·5	28·1	27·2	26·6	30·4	28·4	29·9
6	34·0	33·0	33·3	31·7	29·1	28·0	28·1	28·1	27·0	27·0	30·5	28·4	29·9
7	34·0	33·7	33·0	32·0	28·9	29·1	28·2	28·3	26·8	26·8	30·6	28·7	30·0
8	33·5	33·5	33·6	31·5	29·0	29·2	28·5	28·2	26·7	26·1	30·3	28·9	29·9
9	33·4	33·7	34·1	31·4	29·1	30·1	28·7	28·1	27·6	25·9	30·3	28·9	30·1
10	34·0	33·3	34·1	31·7	29·4	29·8	28·9	28·6	27·6	26·2	30·4	29·0	30·2
11	33·6	33·5	33·9	32·2	28·7	29·7	29·0	28·4	27·3	25·7	29·8	29·5	30·1
12	33·2	33·8	34·1	32·6	28·7	29·5	29·4	28·3	26·9	25·4	30·2	29·2	30·1
13	32·7	33·6	33·8	33·5	29·1	28·9	29·4	28·8	27·7	26·0	30·1	29·4	30·2
14	33·0	32·5	33·3	32·6	29·1	28·6	29·3	29·0	27·2	25·9	30·2	29·2	30·0
15	32·9	31·9	33·5	33·0	29·7	28·3	29·1	28·8	27·7	27·1	30·3	28·8	30·1
16	33·0	32·1	32·9	32·8	29·8	28·2	29·1	28·3	27·9	27·8	30·1	28·3	30·0
17	33·1	32·8	32·2	32·3	29·8	27·8	28·3	28·4	27·9	27·4	29·9	28·4	29·9
18	33·1	33·3	32·7	32·1	29·7	28·4	28·5	28·0	27·8	27·5	29·4	28·7	29·9
19	33·4	33·8	32·8	32·1	29·7	28·4	29·1	28·0	27·7	27·4	29·8	28·2	30·0
20	33·4	33·8	32·5	32·4	29·5	28·7	29·2	28·3	28·0	27·9	30·0	28·1	30·1
21	33·5	33·8	32·9	32·5	29·1	28·7	29·0	28·7	28·0	28·3	29·9	28·4	30·2
22	33·8	33·4	33·4	33·2	28·9	28·0	29·0	28·8	27·8	28·1	30·0	28·0	30·2
23	33·4	33·8	34·1	33·9	28·7	28·2	29·5	28·8	27·2	27·3	30·0	28·0	30·2

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TABLE XVIII.—MEAN LUNATION DETERMINATION of the WESTERN DECLINATION of the MAGNET at every LUNAR HOUR—*continued.*

1859.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 4. 0. 21	February. d h m 3. 0. 36	March. d h m 5. 0. 39	April. d h m 3. 0. 1	May d h m 3. 0. 22	June. d h m 1. 0. 7	July. d h m 1. 1. 2	July. d h m 30. 0. 43	August. d h m 28. 0. 14	September. d h m 27. 0. 32	October. d h m 26. 0. 1	November. d h m 25. 0. 34	December. d h m 24. 0. 14	Mean.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′	′
0	26·5	27·0	27·3	26·7	22·6	23·8	25·1	23·4	22·4	22·3	18·5	19·9	17·5	23·3
1	26·4	28·1	28·3	26·6	22·3	24·2	24·7	23·0	22·0	21·9	19·2	19·9	17·5	23·4
2	26·7	28·4	28·3	27·0	21·6	24·3	25·0	22·9	21·6	21·5	19·7	20·3	17·3	23·4
3	27·0	28·6	28·6	26·5	21·4	24·2	24·3	23·2	22·5	20·4	20·6	20·2	17·8	23·5
4	27·1	28·8	28·8	26·9	21·0	24·3	23·9	22·7	22·9	20·2	20·4	19·9	18·0	23·5
5	27·2	28·9	27·6	26·5	20·9	24·2	24·0	22·7	23·1	19·7	19·9	20·1	17·3	23·2
6	27·2	28·8	27·8	26·3	20·8	23·9	24·2	22·7	24·0	20·2	19·5	20·0	17·1	23·3
7	27·2	28·3	27·0	26·4	20·8	24·3	24·0	22·8	23·5	19·7	19·2	19·5	17·5	23·1
8	26·8	27·8	26·8	26·3	20·6	24·0	24·5	22·7	23·6	20·6	19·0	19·6	16·1	23·0
9	26·9	28·2	27·1	26·2	21·0	24·3	24·1	23·1	23·1	19·8	19·0	20·0	15·6	23·0
10	26·8	27·7	27·2	25·3	20·9	24·8	25·5	23·1	23·6	19·5	19·3	19·3	16·2	23·0
11	27·0	27·2	27·7	25·6	22·0	24·8	25·9	23·2	23·5	20·3	19·3	18·8	15·5	23·1
12	26·8	26·7	28·2	27·1	23·1	25·0	25·3	23·0	23·9	20·9	19·7	18·6	15·4	23·4
13	26·9	26·8	27·8	27·0	23·4	24·5	24·7	23·0	24·5	20·2	20·0	18·9	14·6	23·3
14	27·1	26·8	27·3	27·4	23·9	24·8	24·1	23·0	23·9	20·1	20·1	17·7	14·4	23·1
15	27·3	27·2	26·6	27·5	23·9	25·0	23·6	22·6	23·7	20·6	20·0	18·0	15·1	23·2
16	27·1	26·7	26·6	26·3	23·4	25·2	23·5	22·5	23·2	20·5	19·5	17·6	15·5	22·9
17	27·0	26·0	26·0	26·0	23·1	25·0	23·6	22·8	22·4	20·1	19·6	17·7	15·7	22·7
18	26·9	26·4	25·5	25·6	22·3	24·1	24·1	22·6	22·3	20·2	19·7	17·8	15·5	22·5
19	27·0	26·7	25·6	25·5	21·6	23·9	23·7	22·3	22·1	20·2	19·3	18·4	16·1	22·5
20	26·5	26·5	25·4	25·9	21·4	24·1	24·1	21·9	22·2	20·6	18·7	17·7	15·6	22·4
21	26·4	26·9	26·0	26·2	21·6	23·6	24·7	22·2	21·5	20·9	18·8	18·3	16·0	22·5
22	26·7	27·1	26·1	26·1	21·9	23·7	25·1	22·9	19·8	20·4	18·9	19·2	16·6	22·7
23	26·6	27·4	26·3	26·2	22·5	23·9	25·4	23·5	20·9	21·4	19·2	19·8	16·8	23·1

1860.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 23. 0. 35	February. d h m 22. 0. 39	March. d h m 23. 0. 38	April. d h m 21. 0. 3	May. d h m 21. 0. 32	June. d h m 19. 0. 17	July. d h m 18. 0. 1	August. d h m 17. 0. 32	September. d h m 15. 0. 1	October. d h m 15. 0. 28	November. d h m 13. 0. 7	December. d h m 13. 0. 50	Mean.
	21°	...	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	14·1	..	14·4	18·0	16·8	15·8	16·4	14·6	13·1	13·3	12·5	12·6	14·7
1	14·0	..	15·0	18·9	16·8	15·6	15·4	14·6	13·1	13·6	12·4	11·9	14·7
2	14·1	..	14·6	19·5	16·3	15·6	14·9	13·9	13·0	13·2	12·4	12·0	14·5
3	14·1	..	14·7	20·0	16·4	14·8	14·4	13·4	12·9	13·3	12·5	11·4	14·4
4	14·5	..	14·5	20·4	16·0	14·9	14·1	12·9	12·7	13·9	13·0	11·3	14·4
5	14·3	..	14·8	19·9	15·4	15·0	14·0	12·0	12·4	13·6	13·0	11·3	14·2
6	14·1	..	13·3	19·1	15·8	15·2	14·2	11·9	12·3	13·4	12·8	10·4	13·9
7	14·1	..	12·7	18·8	15·6	15·7	14·5	11·9	11·9	13·4	12·5	10·4	13·8
8	14·3	..	12·9	18·2	15·4	16·4	13·3	12·4	12·4	13·1	12·2	10·2	13·7
9	14·3	..	13·7	17·2	15·9	16·3	14·7	13·3	12·7	13·3	12·0	11·0	14·0
10	14·4	..	13·2	17·4	16·5	16·0	15·1	13·9	12·8	13·3	11·3	10·5	14·0
11	13·8	..	13·1	18·2	15·4	15·9	15·9	14·4	12·5	13·6	11·3	10·6	14·1
12	13·9	..	13·3	19·2	16·5	15·3	16·4	14·7	13·4	13·5	12·1	11·0	14·5
13	14·0	..	14·0	18·5	15·9	14·4	16·7	14·6	13·3	13·8	12·1	11·3	14·4
14	13·4	..	14·0	19·2	16·4	14·4	16·5	14·5	13·3	13·8	12·0	11·5	14·5
15	13·6	..	13·5	18·2	16·0	14·4	16·5	14·2	13·1	13·8	12·1	11·4	14·3
16	13·3	..	14·1	17·2	15·7	13·6	16·1	13·1	12·7	13·6	12·4	11·3	13·9
17	13·7	..	13·2	17·4	15·4	13·5	15·5	13·7	13·0	13·2	12·3	11·3	13·8
18	13·7	..	11·7	16·9	15·4	13·9	15·5	13·9	12·6	13·4	12·6	10·9	13·7
19	13·4	..	12·2	17·0	15·0	14·7	15·8	13·9	12·4	13·5	12·6	11·6	13·8
20	13·6	..	12·0	16·7	14·9	15·8	15·7	14·0	12·4	12·8	12·8	12·0	13·9
21	13·9	..	12·5	16·3	15·6	15·9	15·9	14·7	11·9	12·1	12·9	11·9	14·0
22	14·3	..	13·1	16·5	15·4	16·2	16·1	15·3	12·5	13·0	12·8	12·2	14·3
23	14·2	..	13·5	17·2	15·9	16·0	16·2	14·0	12·2	13·5	12·7	12·3	14·3

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REDUCTIONS OF MAGNETIC HORIZONTAL FORCE REFERRED TO THE MOON'S PLACE.

TABLE XX.—MEAN LUNATION INEQUALITY of the MAGNETIC HORIZONTAL FORCE, exhibited separately for the DIFFERENT YEARS, with the MEAN for all the YEARS, corrected for the Daily Proportion of Secular Change of Horizontal Force.

Day of the Lunation.	1858.	1859.	1860.	1861.	1862.	1863.	Mean 1858 to 1863.	Mean corrected for Secular Change.
1	— 0·0009	+ 0·0007	— 0·0008	..	0·0000	0·0000	— 0·00020	— 0·00013
2	— 11	— 3	— 26	..	— 10	— 7	— 114	— 107
3	— 13	+ 8	— 7	..	— 15	— 7	— 68	— 62
4	— 8	+ 3	— 7	..	+ 7	+ 2	— 6	0
5	— 4	+ 2	+ 3	..	— 6	— 4	— 18	— 13
6	+ 5	— 3	— 5	..	+ 3	— 1	— 2	+ 3
7	+ 4	+ 5	+ 9	..	— 19	— 6	— 14	— 10
8	— 2	— 8	— 3	..	+ 22	+ 1	+ 20	+ 24
9	+ 13	— 5	+ 9	..	— 4	— 5	+ 16	+ 19
10	+ 7	+ 2	— 6	..	— 9	— 3	— 18	— 15
11	+ 11	0	— 10	..	— 11	+ 9	— 2	0
12	+ 11	— 3	— 5	..	+ 1	0	+ 8	+ 10
13	+ 1	— 1	+ 14	..	— 18	+ 9	+ 10	+ 11
14	0	— 1	— 15	..	— 5	— 8	— 58	— 58
15	0	— 1	— 6	..	+ 6	+ 2	+ 2	+ 2
16	— 1	— 2	— 36	..	+ 9	+ 6	— 48	— 49
17	+ 5	0	+ 10	..	+ 1	+ 2	+ 36	+ 34
18	+ 2	+ 3	+ 3	..	— 2	+ 7	+ 26	+ 24
19	+ 7	— 1	+ 13	..	+ 2	+ 6	+ 54	+ 51
20	+ 7	— 5	+ 8	..	+ 6	— 2	+ 28	+ 25
21	— 5	— 5	+ 14	..	+ 16	— 12	+ 16	+ 12
22	+ 4	+ 1	+ 6	..	— 2	+ 8	+ 34	+ 30
23	— 1	+ 4	— 7	..	+ 5	— 2	— 2	— 7
24	— 2	+ 4	+ 1	..	+ 4	— 1	+ 12	+ 7
25	+ 2	+ 2	+ 3	..	+ 3	+ 2	+ 24	+ 18
26	+ 2	0	+ 1	..	+ 3	— 2	+ 8	+ 2
27	— 7	+ 4	+ 13	..	+ 9	+ 2	+ 42	+ 36
28	— 10	+ 2	+ 23	..	+ 2	+ 5	+ 44	+ 37
29	— 3	— 5	+ 23	..	..	— 1	+ 35	+ 28

TABLE XXI.—MEAN LUNAR-MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, uncorrected for TEMPERATURE, at every LUNAR HOUR of the LUNAR DAY, obtained by taking the MEAN of all the DETERMINATIONS at the same LUNAR HOUR through each LUNATION.

1858.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 15. 0. 27	February. d h m 14. 0. 44	March. d h m 15. 0. 8	April. d h m 14. 0. 23	May. d h m 13. 0. 1	June. d h m 12. 0. 58	July. d h m 11. 0. 46	August. d h m 9. 0. 24	September. d h m 8. 0. 39	October. d h m 7. 0. 1	November. d h m 6. 0. 16	December. d h m 6. 0. 43
0	0·1124	0·1118	0·1122	0·1149	0·1129	0·1117	0·1072	0·1086	0·1099	0·1123	0·1125	0·1128
1	·1125	·1119	·1123	·1148	·1130	·1118	·1072	·1086	·1099	·1121	·1126	·1129
2	·1125	·1120	·1123	·1148	·1130	·1121	·1071	·1086	·1099	·1121	·1126	·1127
3	·1125	·1120	·1124	·1148	·1131	·1121	·1070	·1086	·1101	·1120	·1127	·1128
4	·1126	·1120	·1125	·1149	·1128	·1121	·1069	·1087	·1099	·1122	·1126	·1129
5	·1124	·1118	·1125	·1148	·1129	·1122	·1069	·1087	·1100	·1122	·1126	·1129
6	·1123	·1119	·1123	·1148	·1126	·1120	·1068	·1086	·1101	·1121	·1127	·1128
7	·1122	·1118	·1121	·1150	·1126	·1120	·1068	·1087	·1103	·1119	·1128	·1129
8	·1121	·1117	·1121	·1150	·1126	·1116	·1069	·1089	·1100	·1121	·1127	·1130
9	·1122	·1114	·1121	·1151	·1128	·1121	·1069	·1090	·1100	·1122	·1127	·1130
10	·1121	·1115	·1121	·1150	·1129	·1121	·1071	·1090	·1102	·1123	·1127	·1130
11	·1121	·1117	·1122	·1150	·1130	·1121	·1072	·1090	·1104	·1122	·1126	·1131
12	·1122	·1118	·1122	·1150	·1131	·1124	·1072	·1091	·1104	·1123	·1125	·1132
13	·1122	·1119	·1122	·1149	·1132	·1119	·1070	·1092	·1104	·1123	·1126	·1128
14	·1122	·1117	·1125	·1149	·1130	·1118	·1071	·1091	·1105	·1122	·1127	·1128
15	·1122	·1118	·1125	·1147	·1129	·1116	·1071	·1089	·1107	·1124	·1126	·1127
16	·1122	·1119	·1126	·1147	·1130	·1114	·1070	·1090	·1106	·1123	·1125	·1128
17	·1123	·1118	·1125	·1145	·1131	·1116	·1070	·1089	·1105	·1123	·1124	·1127
18	·1124	·1118	·1124	·1144	·1131	·1117	·1069	·1088	·1106	·1122	·1123	·1129
19	·1124	·1115	·1125	·1145	·1131	·1114	·1070	·1088	·1105	·1123	·1123	·1127
20	·1123	·1115	·1124	·1147	·1131	·1115	·1070	·1088	·1103	·1124	·1122	·1127
21	·1123	·1116	·1123	·1147	·1132	·1117	·1070	·1086	·1101	·1123	·1122	·1128
22	·1123	·1116	·1121	·1147	·1131	·1118	·1072	·1086	·1102	·1122	·1122	·1129
23	·1123	·1116	·1122	·1148	·1129	·1120	·1072	·1086	·1101	·1122	·1124	·1129

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TABLE XXI.—MEAN LUNAR-MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE at every LUNAR HOUR—*continued.*

1859.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 4. 0. 21	February. d h m 3. 0. 36	March. d h m 5. 0. 39	April. d h m 3. 0. 1	May. d h m 3. 0. 22	June. d h m 1. 0. 7	July. d h m 1. 1. 2	July. d h m 30. 0. 43	August. d h m 28. 0. 14	September. d h m 27. 0. 32	October. d h m 26. 0. 1	November. d h m 25. 0. 34	December. d h m 24. 0. 14
0	0·0913	0·0910	0·0901	0·0899	0·0904	0·0904	0·0894	0·0895	0·0893	0·0900	0·0924	0·0926	0·0901
1	·0912	·0908	·0901	·0898	·0904	·0904	·0894	·0894	·0895	·0899	·0927	·0928	·0901
2	·0912	·0908	·0902	·0896	·0907	·0902	·0894	·0895	·0893	·0899	·0926	·0930	·0901
3	·0913	·0909	·0902	·0898	·0904	·0902	·0894	·0894	·0891	·0900	·0925	·0926	·0902
4	·0913	·0908	·0904	·0899	·0903	·0902	·0894	·0893	·0891	·0903	·0927	·0923	·0900
5	·0914	·0909	·0905	·0900	·0904	·0902	·0893	·0891	·0888	·0903	·0927	·0920	·0900
6	·0916	·0909	·0905	·0900	·0903	·0901	·0893	·0890	·0889	·0903	·0925	·0922	·0898
7	·0916	·0908	·0907	·0900	·0902	·0901	·0891	·0888	·0891	·0901	·0923	·0924	·0897
8	·0916	·0911	·0906	·0900	·0902	·0902	·0892	·0885	·0888	·0901	·0923	·0925	·0896
9	·0915	·0909	·0906	·0900	·0903	·0903	·0888	·0886	·0887	·0901	·0923	·0924	·0895
10	·0916	·0907	·0905	·0900	·0905	·0905	·0888	·0887	·0887	·0900	·0922	·0922	·0897
11	·0915	·0907	·0905	·0897	·0904	·0906	·0888	·0889	·0884	·0901	·0921	·0922	·0898
12	·0915	·0908	·0906	·0899	·0903	·0906	·0890	·0888	·0885	·0899	·0921	·0926	·0898
13	·0914	·0905	·0906	·0899	·0906	·0905	·0892	·0888	·0885	·0900	·0921	·0926	·0899
14	·0913	·0905	·0904	·0901	·0903	·0907	·0891	·0889	·0887	·0899	·0920	·0926	·0900
15	·0914	·0906	·0904	·0901	·0905	·0907	·0892	·0890	·0886	·0899	·0919	·0927	·0900
16	·0915	·0908	·0904	·0898	·0905	·0908	·0892	·0891	·0889	·0900	·0919	·0928	·0899
17	·0915	·0909	·0904	·0898	·0904	·0907	·0890	·0890	·0893	·0899	·0920	·0929	·0899
18	·0915	·0909	·0904	·0897	·0903	·0906	·0888	·0890	·0893	·0898	·0921	·0930	·0899
19	·0915	·0909	·0903	·0897	·0906	·0906	·0886	·0891	·0892	·0898	·0920	·0928	·0900
20	·0914	·0908	·0903	·0897	·0903	·0907	·0887	·0888	·0895	·0898	·0921	·0927	·0898
21	·0914	·0909	·0903	·0895	·0902	·0907	·0889	·0889	·0893	·0900	·0921	·0927	·0898
22	·0915	·0911	·0903	·0897	·0903	·0906	·0890	·0892	·0892	·0901	·0922	·0926	·0898
23	·0914	·0910	·0902	·0898	·0903	·0906	·0891	·0893	·0893	·0900	·0924	·0925	·0899

1860.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 23. 0. 35	February. d h m 22. 0. 39	March. d h m 23. 0. 38	April. d h m 21. 0. 3	May. d h m 21. 0. 32	June. d h m 19. 0. 17	July. d h m 18. 0. 1	August. d h m 17. 0. 32	September. d h m 15. 0. 1	October. d h m 15. 0. 28	November. d h m 13. 0. 7	December. d h m 13. 0. 50
0	0·0908	..	0·0880	0·0909	0·0960	0·0960	0·0959	0·0951	0·0961	0·0978	0·0993	0·1005
1	·0908	..	·0880	·0909	·0961	·0954	·0962	·0951	·0962	·0980	·0995	·1005
2	·0910	..	·0881	·0911	·0959	·0957	·0963	·0954	·0961	·0981	·0994	·1005
3	·0912	..	·0881	·0913	·0960	·0953	·0964	·0953	·0961	·0981	·0995	·1005
4	·0911	..	·0881	·0912	·0959	·0951	·0965	·0954	·0961	·0982	·0994	·1005
5	·0910	..	·0883	·0912	·0960	·0949	·0964	·0952	·0960	·0982	·0994	·1001
6	·0911	..	·0882	·0915	·0959	·0946	·0960	·0952	·0959	·0982	·0994	·1002
7	·0910	..	·0880	·0915	·0961	·0949	·0962	·0948	·0958	·0982	·0995	·1003
8	·0907	..	·0882	·0916	·0958	·0954	·0959	·0947	·0959	·0982	·0995	·1004
9	·0908	..	·0882	·0919	·0959	·0954	·0961	·0949	·0960	·0981	·0994	·1002
10	·0907	..	·0882	·0920	·0957	·0954	·0960	·0948	·0958	·0980	·0997	·0999
11	·0907	..	·0884	·0920	·0957	·0956	·0962	·0949	·0957	·0981	·0996	·1001
12	·0907	..	·0882	·0922	·0957	·0959	·0961	·0948	·0958	·0980	·0996	·1002
13	·0907	..	·0882	·0922	·0958	·0956	·0959	·0950	·0957	·0981	·0995	·1002
14	·0908	..	·0881	·0918	·0961	·0955	·0959	·0949	·0957	·0980	·0995	·1003
15	·0908	..	·0882	·0917	·0961	·0953	·0958	·0949	·0959	·0979	·0993	·1003
16	·0907	..	·0883	·0916	·0962	·0952	·0958	·0946	·0959	·0978	·0994	·1004
17	·0908	..	·0885	·0914	·0961	·0953	·0956	·0944	·0960	·0978	·0993	·1005
18	·0905	..	·0884	·0915	·0959	·0951	·0953	·0944	·0960	·0978	·0994	·1005
19	·0906	..	·0883	·0914	·0960	·0952	·0954	·0944	·0960	·0976	·0994	·1006
20	·0908	..	·0881	·0915	·0960	·0952	·0954	·0944	·0960	·0977	·0992	·1005
21	·0904	..	·0882	·0909	·0958	·0953	·0954	·0947	·0962	·0976	·0992	·1005
22	·0906	..	·0882	·0912	·0958	·0954	·0955	·0948	·0962	·0978	·0993	·1003
23	·0907	..	·0882	·0909	·0960	·0958	·0958	·0951	·0963	·0979	·0993	·1004

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REDUCTIONS OF MAGNETIC VERTICAL FORCE REFERRED TO THE MOON'S PLACE.

TABLE XXIII.—MEAN LUNATION INEQUALITY of the MAGNETIC VERTICAL FORCE, exhibited separately for the DIFFERENT YEARS, with the Mean of all the Years.

Day of the Lunation.	1858.	1859.	1860.	1861.	1862.	1863.	Mean, 1858 to 1863.
1	+ 0·0016	+ 0·0019	+ 0·0007	− 0·0028	+ 0·0008	+ 0·0002	+ 0·00040
2	+ 5	− 3	+ 11	− 20	− 9	− 2	− 30
3	− 2	+ 17	+ 12	− 20	− 4	+ 16	+ 32
4	+ 1	+ 13	− 5	+ 23	− 5	+ 22	+ 82
5	+ 4	+ 19	+ 1	− 38	+ 15	+ 8	+ 15
6	+ 6	+ 31	− 11	− 20	− 1	+ 38	+ 72
7	+ 8	− 6	− 3	+ 17	+ 4	+ 23	+ 72
8	− 1	− 21	− 9	− 25	+ 26	+ 5	− 42
9	+ 5	− 23	− 11	− 2	+ 6	+ 15	− 17
10	+ 7	− 26	− 6	+ 16	− 27	− 2	− 63
11	− 8	− 14	− 7	+ 28	+ 1	− 1	− 2
12	− 12	− 18	+ 14	+ 36	− 19	+ 7	+ 13
13	+ 4	− 29	− 11	− 5	0	+ 3	− 63
14	0	− 15	− 18	+ 9	+ 6	+ 14	− 7
15	+ 8	− 25	− 22	+ 6	+ 7	− 11	− 62
16	− 5	− 8	+ 26	+ 2	− 2	− 7	+ 10
17	− 7	+ 12	+ 47	+ 1	+ 12	− 23	+ 70
18	+ 1	− 22	− 3	+ 1	+ 13	− 23	− 55
19	− 4	− 10	− 16	+ 7	− 2	+ 23	− 3
20	+ 1	− 1	− 6	+ 6	− 21	− 14	− 58
21	+ 4	+ 40	+ 11	+ 15	− 16	− 21	+ 55
22	− 1	+ 23	+ 9	− 8	− 6	− 37	− 33
23	− 4	+ 16	− 19	+ 16	− 11	− 20	− 37
24	− 2	+ 12	− 3	+ 8	− 16	− 8	− 15
25	+ 3	− 13	− 13	− 5	+ 3	+ 2	− 38
26	− 5	+ 16	+ 17	+ 17	+ 4	− 3	+ 77
27	− 10	+ 17	+ 17	− 3	− 4	− 12	+ 8
28	− 8	+ 17	− 4	+ 1	+ 29	+ 6	+ 68
29	+ 4	− 11	− 12	− 37	..	+ 14	− 84

TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, uncorrected for TEMPERATURE, at every LUNAR HOUR of the LUNAR DAY, obtained by taking the MEAN of all the DETERMINATIONS at the same LUNAR HOUR through each LUNATION.

1858.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 15. 0. 27	February. d h m 14. 0. 44	March. d h m 15. 0. 8	April. d h m 14. 0. 23	May. d h m 13. 0. 1	June. d h m 12. 0. 58	July. d h m 11. 0. 46	August. d h m 9. 0. 24	September. d h m 8. 0. 39	October. d h m 7. 0. 1	November. d h m 6. 0. 16	December. d h m 6. 0. 45
0	·0298	·0296	·0310	·0306	·0331	·0311	·0314	·0299	·0306	·0311	·0323	·0333
1	·0298	·0295	·0310	·0308	·0330	·0312	·0316	·0297	·0306	·0310	·0325	·0333
2	·0298	·0294	·0310	·0311	·0332	·0311	·0315	·0300	·0305	·0311	·0324	·0333
3	·0298	·0296	·0311	·0314	·0333	·0312	·0315	·0303	·0303	·0310	·0324	·0332
4	·0298	·0297	·0312	·0314	·0335	·0313	·0315	·0305	·0298	·0310	·0323	·0331
5	·0298	·0298	·0312	·0312	·0335	·0312	·0317	·0307	·0293	·0310	·0323	·0331
6	·0298	·0295	·0313	·0309	·0334	·0313	·0318	·0309	·0289	·0312	·0323	·0332
7	·0298	·0294	·0313	·0307	·0334	·0314	·0320	·0310	·0284	·0314	·0323	·0332
8	·0298	·0295	·0313	·0305	·0334	·0315	·0318	·0311	·0282	·0312	·0324	·0333
9	·0300	·0295	·0314	·0304	·0334	·0315	·0316	·0312	·0284	·0312	·0325	·0334
10	·0300	·0294	·0313	·0304	·0334	·0314	·0314	·0314	·0285	·0311	·0326	·0334
11	·0301	·0292	·0313	·0304	·0332	·0311	·0313	·0315	·0287	·0311	·0327	·0335
12	·0300	·0293	·0312	·0302	·0335	·0313	·0314	·0316	·0288	·0310	·0328	·0335
13	·0300	·0294	·0313	·0300	·0336	·0310	·0316	·0314	·0290	·0311	·0328	·0337
14	·0299	·0294	·0312	·0299	·0337	·0310	·0316	·0308	·0294	·0310	·0327	·0337
15	·0298	·0293	·0312	·0298	·0337	·0308	·0314	·0308	·0298	·0308	·0328	·0337
16	·0298	·0293	·0312	·0298	·0338	·0306	·0313	·0307	·0302	·0307	·0328	·0337
17	·0298	·0293	·0311	·0297	·0336	·0309	·0311	·0303	·0306	·0309	·0327	·0335
18	·0299	·0293	·0310	·0298	·0335	·0307	·0311	·0301	·0309	·0308	·0327	·0333
19	·0300	·0295	·0311	·0299	·0333	·0307	·0308	·0299	·0311	·0308	·0326	·0331
20	·0301	·0297	·0311	·0300	·0332	·0305	·0308	·0299	·0314	·0309	·0326	·0330
21	·0302	·0298	·0311	·0301	·0333	·0307	·0309	·0298	·0312	·0310	·0324	·0330
22	·0301	·0299	·0310	·0303	·0332	·0307	·0310	·0294	·0316	·0310	·0323	
23	·0300	·0298	·0309	·0303	·0332	·0307	·0313	·0293	·0315			

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TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE at every LUNAR HOUR—*continued.*

1859.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 4. 0. 21	February. d h m 3. 0. 36	March. d h m 5. 0. 39	April. d h m 3. 0. 1	May. d h m 3. 0. 22	June. d h m 1. 0. 7	July. d h m 1. 1. 2	July. d h m 30. 0. 43	August. d h m 28. 0. 14	September. d h m 27. 0. 32	October. d h m 26. 0. 1	November. d h m 25. 0. 34	December. d h m 24. 0. 14
0	0·0296	..	..	0·0237	0·0142	0·0164	0·0194	0·0215	0·0172	0·0234	0·0234	0·0239	0·0263
1	·0297	..	..	·0238	·0141	·0163	·0198	·0217	·0173	·0236	·0236	·0239	·0263
2	·0299	..	..	·0238	·0140	·0163	·0199	·0216	·0174	·0237	·0239	·0237	·0263
3	·0300	..	..	·0241	·0143	·0160	·0198	·0217	·0176	·0239	·0241	·0238	·0263
4	·0301	..	..	·0238	·0139	·0161	·0196	·0219	·0178	·0239	·0242	·0237	·0262
5	·0302	..	..	·0234	·0141	·0163	·0193	·0220	·0180	·0241	·0242	·0238	·0260
6	·0301	..	..	·0231	·0141	·0163	·0193	·0222	·0181	·0242	·0242	·0239	·0259
7	·0300	..	..	·0233	·0140	·0165	·0190	·0224	·0186	·0241	·0242	·0240	·0260
8	·0300	..	..	·0222	·0141	·0166	·0186	·0225	·0187	·0239	·0241	·0242	·0260
9	·0300	..	..	·0216	·0141	·0166	·0190	·0227	·0189	·0239	·0242	·0242	·0260
10	·0300	..	..	·0212	·0138	·0168	·0186	·0228	·0189	·0239	·0242	·0244	·0260
11	·0300	..	..	·0207	·0143	·0169	·0185	·0228	·0188	·0238	·0242	·0245	·0259
12	·0299	..	..	·0204	·0144	·0169	·0185	·0229	·0186	·0238	·0242	·0245	·0258
13	·0299	..	..	·0204	·0147	·0169	·0186	·0232	·0183	·0238	·0241	·0247	·0256
14	·0300	..	..	·0204	·0150	·0168	·0184	·0233	·0181	·0239	·0240	·0247	·0257
15	·0301	..	..	·0205	·0150	·0166	·0181	·0232	·0180	·0240	·0239	·0246	·0257
16	·0301	..	..	·0205	·0148	·0164	·0179	·0231	·0179	·0240	·0238	·0245	·0258
17	·0301	..	..	·0205	·0146	·0163	·0177	·0230	·0178	·0242	·0238	·0243	·0258
18	·0301	..	..	·0210	·0137	·0169	·0178	·0230	·0176	·0242	·0237	·0240	·0259
19	·0300	..	..	·0215	·0138	·0167	·0179	·0230	·0175	·0241	·0235	·0240	·0260
20	·0299	..	..	·0220	·0141	·0168	·0180	·0228	·0172	·0240	·0234	·0241	·0259
21	·0298	..	..	·0224	·0141	·0164	·0181	·0226	·0175	·0239	·0235	·0238	·0259
22	·0297	..	..	·0229	·0141	·0162	·0184	·0225	·0176	·0240	·0235	·0238	·0258
23	·0296	..	..	·0233	·0141	·0160	·0187	·0223	·0178	·0241	·0234	·0240	·0260

1860.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 23. 0. 35	February. d h m 22. 0. 39	March. d h m 23. 0. 38	April. d h m 21. 0. 3	May. d h m 21. 0. 32	June. d h m 19. 0. 17	July. d h m 18. 0. 1	August. d h m 17. 0. 32	September. d h m 15. 0. 1	October. d h m 15. 0. 28	November. d h m 13. 0. 7	December. d h m 13. 0. 50
0	0·0259	0·0220	0·0175	0·0215	0·0153	0·0204	0·0277	0·0308	0·0161	0·0215	0·0218	0·0242
1	·0258	·0220	·0172	·0205	·0154	·0205	·0276	·0309	·0162	·0217	·0218	·0242
2	·0258	·0220	·0172	·0201	·0153	·0205	·0277	·0309	·0162	·0218	·0218	·0241
3	·0259	·0221	·0173	·0183	·0153	·0205	·0277	·0315	·0164	·0218	·0218	·0240
4	·0259	·0221	·0173	·0185	·0154	·0206	·0278	·0311	·0165	·0219	·0219	·0239
5	·0260	·0222	·0171	·0187	·0155	·0206	·0282	·0313	·0165	·0219	·0220	·0238
6	·0259	·0221	·0169	·0187	·0157	·0206	·0281	·0311	·0167	·0221	·0220	·0237
7	·0259	·0220	·0167	·0189	·0156	·0205	·0277	·0310	·0168	·0222	·0220	·0235
8	·0259	·0218	·0164	·0194	·0158	·0205	·0277	·0312	·0168	·0222	·0220	·0234
9	·0259	·0216	·0163	·0195	·0159	·0206	·0273	·0311	·0169	·0222	·0220	·0234
10	·0259	·0215	·0164	·0201	·0159	·0207	·0276	·0311	·0169	·0222	·0220	·0234
11	·0258	·0215	·0164	·0198	·0159	·0204	·0274	·0310	·0167	·0222	·0221	·0234
12	·0260	·0216	·0165	·0200	·0159	·0203	·0271	·0309	·0167	·0223	·0221	·0235
13	·0258	·0217	·0164	·0202	·0160	·0201	·0272	·0307	·0168	·0222	·0221	·0236
14	·0259	·0218	·0165	·0198	·0162	·0198	·0282	·0306	·0168	·0221	·0221	·0234
15	·0259	·0220	·0165	·0197	·0161	·0198	·0285	·0303	·0167	·0219	·0222	·0236
16	·0259	·0221	·0165	·0197	·0160	·0196	·0286	·0296	·0164	·0218	·0223	·0237
17	·0259	·0221	·0162	·0211	·0157	·0197	·0286	·0299	·0164	·0217	·0223	·0238
18	·0260	·0221	·0162	·0214	·0156	·0199	·0285	·0300	·0164	·0215	·0222	·0239
19	·0260	·0222	·0163	·0217	·0154	·0201	·0286	·0303	·0164	·0214	·0222	·0240
20	·0258	·0222	·0166	·0218	·0152	·0202	·0278	·0306	·0163	·0214	·0221	·0240
21	·0260	·0222	·0167	·0217	·0152	·0203	·0273	·0307	·0163	·0211	·0221	·0241
22	·0260	·0222	·0169	·0218	·0152	·0205	·0276	·0308	·0164	·0211	·0221	·0241
23	·0259	·0220	·0170	·0219	·0156	·0205	·0276	·0309	·0164	·0211	·0221	·0240

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TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE AT EVERY LUNAR HOUR—*continued.*

1861.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 11. 0. 27	February. d h m 10. 0. 40	March. d h m 11. 0. 1	April. d h m 10. 0. 2	May. d h m 10. 0. 17	June. d h m 9. 0. 47	July. d h m 8. 0. 26	August. d h m 6. 0. 1	September. d h m 5. 0. 21	October. d h m 5. 0. 48	November. d h m 3. 0. 29	December. d h m 2. 0. 14
0	0·0226	0·0232	0·0184	0·0222	0·0200	0·0257	0·0219	0·0154	0·0154	0·0326	0·0354	0·0273
1	·0227	·0232	·0183	·0220	·0199	·0258	·0219	·0155	·0159	·0322	·0354	·0279
2	·0228	·0231	·0183	·0219	·0198	·0259	·0218	·0156	·0161	·0323	·0354	·0278
3	·0228	·0232	·0181	·0215	·0198	·0260	·0216	·0158	·0161	·0324	·0357	·0278
4	·0229	·0231	·0179	·0214	·0198	·0261	·0215	·0160	·0161	·0328	·0356	·0278
5	·0229	·0230	·0178	·0216	·0197	·0264	·0213	·0158	·0160	·0328	·0354	·0281
6	·0229	·0228	·0176	·0219	·0197	·0263	·0212	·0157	·0159	·0328	·0350	·0281
7	·0229	·0228	·0174	·0216	·0197	·0262	·0212	·0155	·0163	·0328	·0349	·0281
8	·0229	·0229	·0175	·0219	·0199	·0258	·0212	·0150	·0162	·0328	·0350	·0282
9	·0226	·0229	·0175	·0217	·0201	·0260	·0211	·0149	·0163	·0329	·0351	·0282
10	·0228	·0229	·0176	·0215	·0202	·0261	·0212	·0148	·0165	·0329	·0351	·0279
11	·0229	·0229	·0178	·0214	·0204	·0261	·0212	·0143	·0166	·0330	·0352	·0279
12	·0230	·0229	·0179	·0211	·0207	·0263	·0213	·0144	·0163	·0330	·0354	·0280
13	·0230	·0231	·0180	·0211	·0211	·0259	·0215	·0140	·0164	·0332	·0355	·0280
14	·0228	·0231	·0182	·0211	·0213	·0257	·0216	·0141	·0163	·0331	·0357	·0279
15	·0228	·0230	·0182	·0211	·0214	·0255	·0220	·0141	·0162	·0334	·0355	·0279
16	·0228	·0231	·0183	·0212	·0214	·0249	·0217	·0144	·0159	·0338	·0358	·0284
17	·0229	·0232	·0183	·0212	·0212	·0251	·0219	·0141	·0159	·0335	·0360	·0285
18	·0229	·0233	·0183	·0213	·0212	·0256	·0218	·0136	·0158	·0329	·0363	·0287
19	·0229	·0234	·0184	·0215	·0207	·0256	·0219	·0144	·0156	·0330	·0361	·0280
20	·0228	·0235	·0182	·0216	·0208	·0254	·0219	·0146	·0158	·0328	·0366	·0271
21	·0231	·0234	·0183	·0217	·0207	·0253	·0219	·0152	·0157	·0326	·0365	·0277
22	·0231	·0234	·0182	·0222	·0205	·0255	·0219	·0150	·0155	·0328	·0365	·0282
23	·0231	·0233	·0181	·0222	·0202	·0255	·0218	·0153	·0154	·0330	·0359	·0282

1862.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 1. 0. 58	January. d h m 30. 0. 30	March. d h m 1. 0. 42	March. d h m 30. 0. 4	April. d h m 29. 0. 16	May. d h m 29. 0. 38	June. d h m 27. 0. 13	July. d h m 27. 0. 32	August. d h m 26. 0. 46	September. d h m 24. 0. 15	October. d h m 24. 0. 47	November. d h m 22. 0. 31	December. d h m 21. 0. 17
0	0·0248	0·0247	0·0226	0·0259	0·0194	0·0176	0·0138	0·0235	0·0299	0·0313	0·0244	0·0267	0·0162
1	·0248	·0246	·0225	·0256	·0194	·0177	·0138	·0228	·0296	·0308	·0245	·0265	·0164
2	·0249	·0244	·0227	·0255	·0193	·0178	·0135	·0230	·0293	·0311	·0246	·0265	·0165
3	·0250	·0245	·0226	·0253	·0195	·0181	·0133	·0220	·0290	·0299	·0247	·0265	·0165
4	·0250	·0245	·0224	·0251	·0192	·0180	·0130	·0227	·0292	·0297	·0250	·0268	·0163
5	·0251	·0245	·0223	·0248	·0187	·0181	·0120	·0229	·0293	·0300	·0253	·0267	·0162
6	·0252	·0245	·0220	·0246	·0185	·0180	·0121	·0233	·0291	·0300	·0254	·0266	·0161
7	·0253	·0246	·0221	·0244	·0183	·0179	·0124	·0238	·0292	·0299	·0254	·0266	·0160
8	·0253	·0247	·0222	·0245	·0184	·0178	·0123	·0238	·0293	·0297	·0253	·0267	·0158
9	·0252	·0248	·0224	·0245	·0188	·0178	·0123	·0241	·0296	·0299	·0254	·0266	·0157
10	·0251	·0251	·0226	·0243	·0191	·0178	·0124	·0244	·0293	·0298	·0255	·0266	·0154
11	·0250	·0251	·0230	·0244	·0191	·0179	·0126	·0247	·0292	·0298	·0257	·0266	·0156
12	·0250	·0248	·0232	·0245	·0191	·0181	·0128	·0250	·0292	·0301	·0255	·0266	·0155
13	·0250	·0248	·0233	·0245	·0192	·0182	·0130	·0244	·0292	·0305	·0250	·0266	·0154
14	·0250	·0250	·0233	·0248	·0191	·0182	·0131	·0246	·0294	·0308	·0248	·0265	·0154
15	·0251	·0248	·0233	·0250	·0192	·0181	·0134	·0241	·0299	·0312	·0246	·0265	·0154
16	·0249	·0248	·0239	·0252	·0193	·0179	·0134	·0234	·0301	·0314	·0248	·0266	·0154
17	·0248	·0247	·0239	·0254	·0191	·0180	·0132	·0235	·0297	·0310	·0246	·0266	·0154
18	·0248	·0247	·0238	·0255	·0190	·0183	·0132	·0227	·0297	·0314	·0246	·0267	·0155
19	·0248	·0246	·0238	·0256	·0192	·0183	·0135	·0232	·0299	·0314	·0247	·0267	·0156
20	·0248	·0246	·0234	·0258	·0191	·0178	·0134	·0230	·0301	·0315	·0248	·0267	·0156
21	·0248	·0247	·0233	·0258	·0192	·0178	·0135	·0227	·0300	·0313	·0248	·0268	·0157
22	·0248	·0246	·0232	·0259	·0192	·0176	·0136	·0234	·0298	·0313	·0248	·0266	·0159
23	·0248	·0246	·0230	·0258	·0193	·0176	·0136	·0232	·0299	·0311	·0248		

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TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE AT EVERY LUNAR HOUR—*concluded.*

1863.

Lunar Hour.	Greenwich Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 20. 0. 56	February. d h m 18. 0. 27	March. d h m 20. 0. 44	April. d h m 18. 0. 13	May. d h m 18. 0. 35	June. d h m 16. 0. 10	July. d h m 16. 0. 28	August. d h m 15. 0. 37	September. d h m 13. 0. 2	October. d h m 13. 0. 16	November. d h m 12. 0. 49	December. d h m 11. 0. 34
0	0·0131	0·0144	0·0120	0·0169	0·0149	0·0275	0·0275	0·0308	0·0316	0·0350	0·0369	0·0365
1	·0131	·0145	·0119	·0168	·0153	·0278	·0277	·0308	·0316	·0352	·0370	·0364
2	·0132	·0145	·0119	·0167	·0153	·0280	·0279	·0309	·0319	·0353	·0365	·0367
3	·0131	·0145	·0118	·0167	·0156	·0280	·0280	·0311	·0319	·0354	·0365	·0360
4	·0131	·0146	·0118	·0167	·0155	·0279	·0280	·0309	·0319	·0354	·0366	·0366
5	·0131	·0146	·0120	·0167	·0154	·0277	·0280	·0308	·0317	·0355	·0366	·0368
6	·0129	·0145	·0119	·0167	·0154	·0274	·0277	·0307	·0318	·0351	·0365	·0368
7	·0128	·0145	·0119	·0167	·0155	·0272	·0276	·0305	·0323	·0351	·0365	·0366
8	·0128	·0146	·0119	·0167	·0156	·0272	·0275	·0308	·0322	·0356	·0368	·0368
9	·0127	·0146	·0120	·0166	·0157	·0272	·0273	·0308	·0320	·0356	·0367	·0368
10	·0127	·0146	·0120	·0167	·0157	·0271	·0273	·0307	·0322	·0353	·0369	·0371
11	·0126	·0146	·0122	·0167	·0156	·0270	·0274	·0307	·0323	·0352	·0368	·0374
12	·0126	·0146	·0122	·0168	·0157	·0269	·0273	·0306	·0324	·0352	·0367	·0375
13	·0125	·0145	·0126	·0167	·0158	·0268	·0273	·0305	·0325	·0353	·0367	·0375
14	·0126	·0145	·0129	·0168	·0157	·0268	·0272	·0304	·0325	·0354	·0367	·0375
15	·0126	·0145	·0128	·0168	·0157	·0265	·0272	·0303	·0324	·0355	·0366	·0377
16	·0126	·0143	·0128	·0168	·0157	·0266	·0271	·0303	·0324	·0355	·0366	·0373
17	·0126	·0142	·0129	·0168	·0157	·0271	·0270	·0303	·0323	·0354	·0365	·0373
18	·0126	·0142	·0128	·0169	·0155	·0272	·0268	·0304	·0320	·0354	·0364	·0370
19	·0128	·0142	·0129	·0169	·0156	·0274	·0269	·0303	·0318	·0351	·0364	·0372
20	·0130	·0143	·0125	·0169	·0154	·0275	·0269	·0305	·0316	·0351	·0362	·0371
21	·0131	·0143	·0122	·0170	·0153	·0277	·0270	·0307	·0316	·0352	·0363	·0367
22	·0131	·0143	·0122	·0170	·0153	·0278	·0272	·0308	·0316	·0352	·0367	·0367
23	·0131	·0144	·0121	·0169	·0154	·0278	·0274	·0309	·0317	·0353	·0369	·0365

TABLE XXV.—MEAN, through the RANGE of LUNATIONS, of the LUNATION-MEAN DETERMINATIONS of the LUNO-DIURNAL INEQUALITY of VERTICAL FORCE; exhibited separately for the DIFFERENT YEARS; with the Mean of all the YEARS.

Lunar Hour.	1858.	1859.	1860.	1861.	1862.	1863.	Mean 1858 to 1863.	Equivalent in Terms of Horizontal Force.
0	− 0·00002	− 0·00009	+ 0·00011	− 0·00006	+ 0·00015	− 0·00008	+ 0·000002	+ 0·000005
1	0	+ 1	+ 3	− 1	+ 1	0	+ 7	+ 18
2	+ 3	+ 5	0	0	+ 1	+ 6	+ 25	+ 63
3	+ 9	+ 15	− 7	0	− 15	+ 4	+ 10	+ 25
4	+ 9	+ 11	− 4	+ 2	− 16	+ 8	+ 17	+ 43
5	+ 7	+ 13	+ 3	0	− 22	+ 7	+ 13	+ 33
6	+ 4	+ 13	+ 2	− 8	− 25	− 6	− 33	− 83
7	+ 3	+ 18	− 5	− 12	− 22	− 8	− 43	− 108
8	− 1	+ 8	− 3	− 12	− 23	+ 3	− 47	− 118
9	+ 3	+ 11	− 6	− 13	− 12	− 1	− 30	− 75
10	+ 3	+ 5	+ 2	− 11	− 9	+ 2	− 13	− 33
11	0	+ 4	− 7	− 9	− 3	+ 3	− 20	− 50
12	+ 6	− 1	− 4	− 4	+ 5	+ 3	+ 8	+ 20
13	+ 5	+ 2	− 5	0	+ 2	+ 5	+ 15	+ 38
14	+ 3	+ 3	− 2	+ 1	+ 9	+ 8	+ 37	+ 93
15	+ 1	− 3	− 2	+ 3	+ 13	+ 4	+ 27	+ 68
16	0	− 11	− 10	+ 8	+ 16	− 1	+ 3	+ 8
17	− 3	− 17	0	+ 8	+ 8	0	− 7	− 18
18	− 5	− 19	+ 3	+ 7	+ 6	− 7	− 25	− 63
19	− 6	− 18	+ 10	+ 6	+ 18	− 5	+ 8	+ 20
20	− 5	− 16	+ 5	+ 3	+ 13	− 9	− 15	− 38
21	− 3	− 18	+ 2	+ 11	+ 10	− 8	− 10	− 25
22	− 3	− 14	+ 11	+ 17	+ 14	− 2	+ 38	+ 95
23	− 6	− 6	+ 13	+ 10	+ 10	+ 3	+ 40	+ 100

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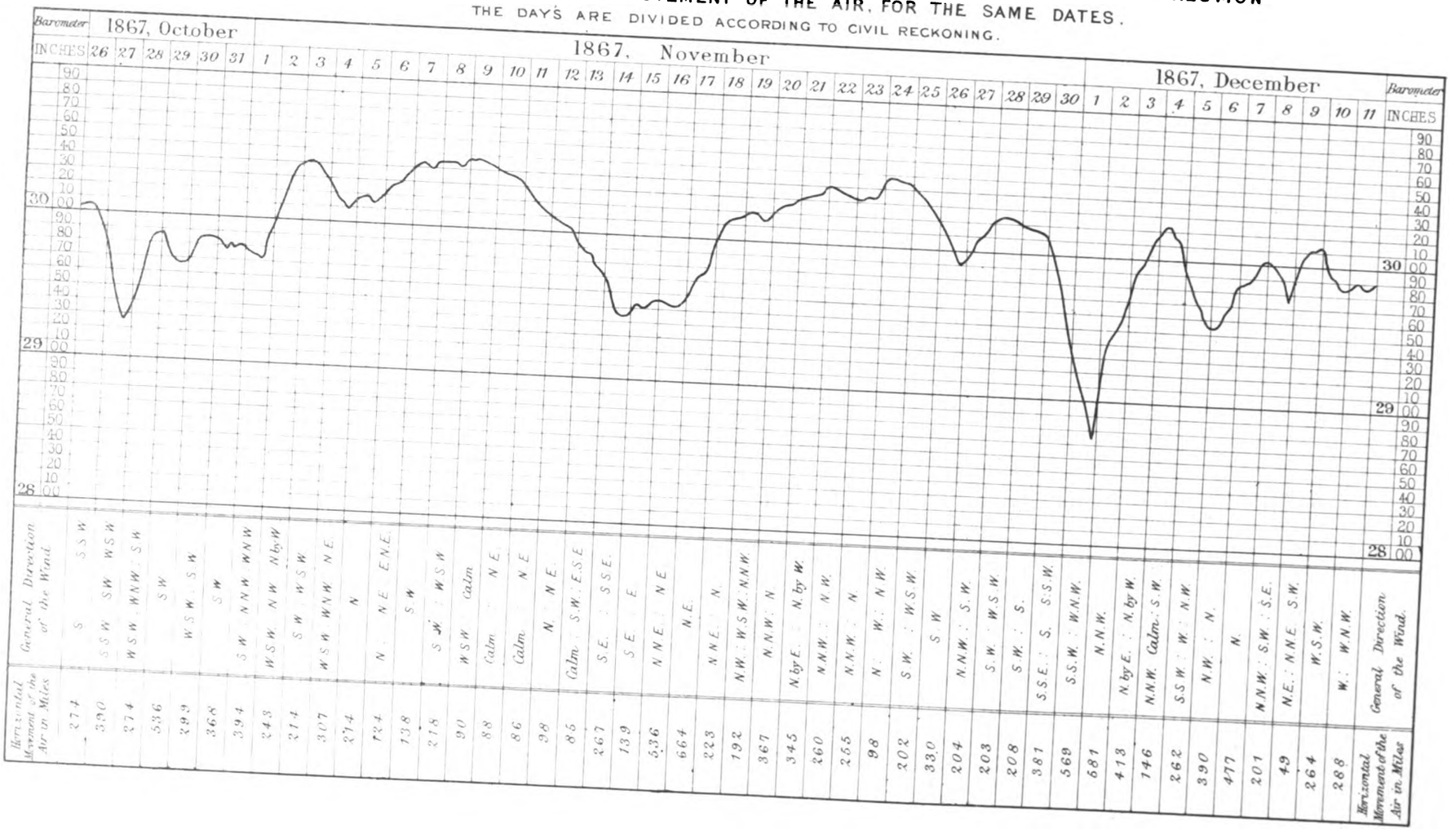
ROYAL OBSERVATORY, GREENWICH.

DIAGRAM EXHIBITING THE VARIATIONS OF THE BAROMETER (159 FEET ABOVE SEA LEVEL,) FROM 1867. OCTOBER 26, TO 1867, DECEMBER 11; & SHOWING ALSO THE GENERAL DIRECTION OF THE WIND, AND DAILY HORIZONTAL MOVEMENT OF THE AIR, FOR THE SAME DATES.

THE DAYS ARE DIVIDED ACCORDING TO CIVIL RECKONING.



	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11
General Direction of the Wind	S.	SSW	SSW	SW	WSW	WNW.	SW	WSW.	SW	WSW.	NW.	NbyW	SW	WSW	WNW.	NE	N.	NE.	ENE.	SW	SW.	WSW	N.	NE.	NE	NE.	N.	NW.	W.NW.	N.	N.	NW.	N.	NW.	W.	NW.	N.	NW.	W.	NW.	N.	NW.	W.	NW.	N.	NW.	W.	NW.	N.	NW.	W.	NW.
Horizontal Movement of the Air in Miles	274	390	274	536	299	368	394	243	214	307	214	124	138	218	90	88	86	98	85	267	139	536	664	223	192	367	345	260	255	98	202	330	204	203	208	381	569	681	413	146	262	390	477	201	49	264	288

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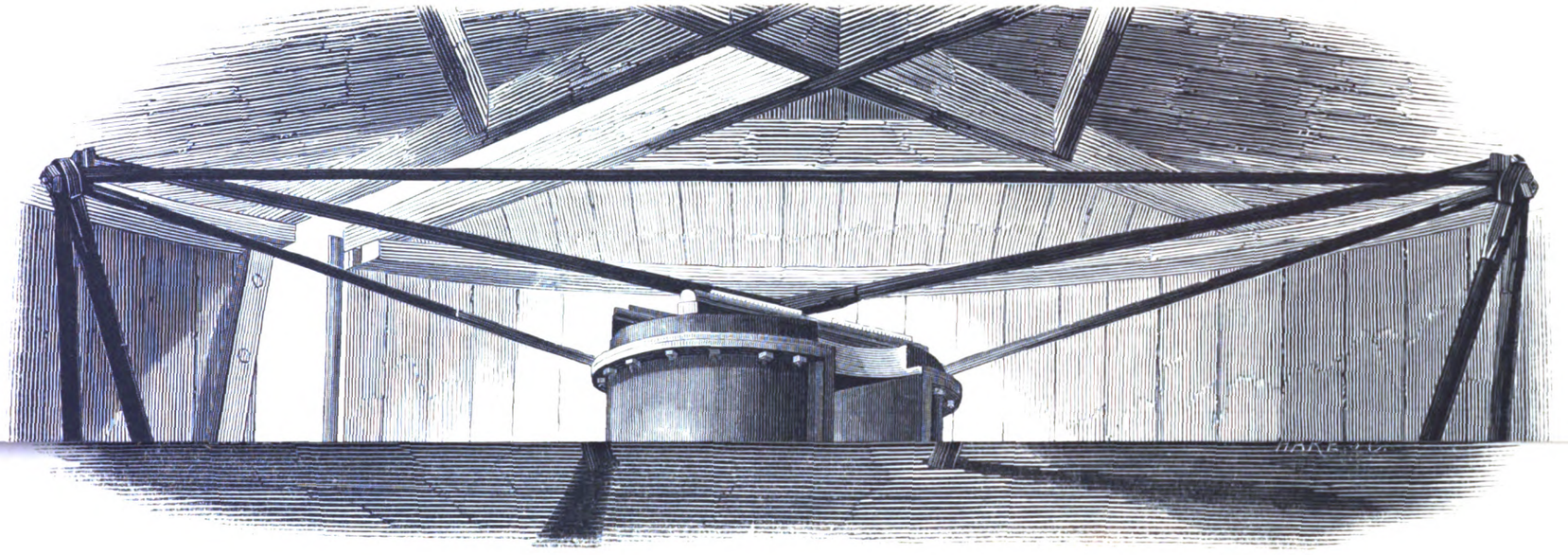

A PERSPECTIVE VIEW OF THE ALTITUDE AND AZIMUTH INSTRUMENT,

RECENTLY ERECTED AT THE ROYAL OBSERVATORY, GREENWICH.

FROM THE "ILLUSTRATED LONDON NEWS," SEPTEMBER, 1847.

Jabez Hare, Engraver and Printer,] [108, Fleet Street, London.

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DESCRIPTION

OF THE

ALTAZIMUTH

OF THE

ROYAL OBSERVATORY, GREENWICH.

EXTRACTED FROM THE INTRODUCTION TO THE GREENWICH OBSERVATIONS, 1847.

21125.

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inwards till they meet at the center. The height of the surface of this stone above the foundation is about 26 feet. The stones are channelled, and the radial arms D of the lower iron triangle are laid in the channels.

C, the upper cylindrical pier, covering the center of A, and covering also the center of the iron radial arms. Its top is a block of Portland stone, 1 foot thick. C is the support of the lower fixed circle of the instrument.

D, D, D, the radial arms of the lower iron triangle, $1\frac{1}{2}$ inch square, resting in the stone channels.

E, E, E, the three sides of the lower iron triangle, $1\frac{1}{2}$ inch square. They are welded to the radial arms D; and they have no support except at their extremities.

F, F, &c., the places of attachment of the rising bars of the side-triangles. Screw-bolts project horizontally from the sides of E E E, being welded to E E E; and upon these the eyes at the bottoms of the rising bars are forced by powerful nuts. The radial arms D, the sides E of the triangle, and the screw-bolts at F, form, by welding, one piece of metal.

G, G, &c., portions of the rising arms of the side-triangles, as projected on the horizontal plan. The lower triangle is entirely below the floor and floor-joists of the observing-room.

FIGURE 2 is an elevation of one of the three side-triangles.

F, the attachment of the eye at the bottom of the rising bar G, shewn more clearly in figure 2 *a*.

G, G, the rising bars, which are round, $1\frac{1}{2}$ inch in diameter. They are welded together at the top, and at the place of their meeting a hole is pierced for the passage of the screw-bolt which is welded to the upper triangle.

H (see also figure 2*b*), a screw-bolt welded to the upper triangle, passing through the hole at the union of the arms G, where the screw H is drawn by a powerful nut.

I, I, portions of the sides of the upper triangle, which are round iron bars, $1\frac{1}{2}$ inch in diameter.

K, a fork, welded to the upper triangle, in which one of the upper radial bars rests.

L, a nut upon the end of the radial bar, which is cut with a screw.

The arms G G pass through holes in the floor of the room without touching it.

FIGURE 3 is the horizontal plan of the upper triangle with its radial bars and the upper Y for the rotation in azimuth.

G, G, &c., are portions of the rising bars as projected on the horizontal plan.

H, H, H, the screws on the arms which project horizontally from, and are welded with, the angles of the upper triangle, passing through holes at the unions of the bars G, G, &c., and drawn by powerful nuts.

I, I, I, the three sides of the triangle welded in one piece.

K (see figure 3*a*), a fork which projects upwards from, and is welded with, each angle of the upper triangle. The sides I, the screws H, and the forks K, form, by welding, one piece of metal.

M, M, M, the three radial bars of the upper triangle, which are round, and 1 inch in diameter. They are welded together at the center, where they meet, and their ends are cut into screws. Each of these ends rests in a fork K, and carries two nuts L, L, one exterior to K and one interior to it. By these nuts the fork K is firmly embraced, and the rod is prevented from sliding endways in it. For security, the rods M are tied down by wire to the bars G.

N is the upper Y in which the upper pivot of the azimuthal motion turns. The triangular part of N is welded to M; the pivot is forced horizontally into the triangular part by a vertical plate which is screwed by bolts and nuts, and in which the spring of metal insures a firm and constant contact with the upper pivot. The three bars M and the triangular part N of the Y, form, by welding, one piece of metal.

The Y was placed nearly in its proper position by the use of the pairs of nuts L, L (every strain of these nuts producing a flexure of some part of the radial bars M), and then all the nuts L were made tight and the Y was left without further adjustment.

FIGURE 4 is a perspective view of all the parts described in figures 1, 2, 3; the floor being supposed to be removed, and no part of the instrument mounted except the lower fixed-circle. The reader will remark that, in the perspective, the lower triangle is represented as viewed from above, and the upper triangle as viewed from below: and thus it will be seen that the sides of one of these triangles correspond to the angles of the other. The general arrangement of the rods represents the edges or arêtes of a slightly irregular octahedron.

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The azimuthal position of the triangles is not arbitrary. There was, however, only one reason to determine the selection of position, namely, that that position ought to be preferred in which the bars of the frame would least interrupt the telescope in the view of the Moon (the interruption of the view of a star being unimportant, as the observation might be deferred, or another star might be taken). The single bars offer no material interruption to the telescope ; the only part which deserves consideration is the angle of the upper triangle, where five bars unite, and where there are also a fork, nuts, &c. Now it was obvious that if the frame were so placed that one of these angles should be exactly South ; then the two remaining angles would be in positions in which the Moon could never pass them ; and the southern angle, though it would undoubtedly interrupt the sight of the Moon, would do so in a position of the Moon which is not favourable to observations with this instrument, and in which she would infallibly be observed with the meridional instruments. That position was therefore adopted for the frame; and every arrangement of the building, staircase, &c., was made in subordination to this choice.

The support for the upper pivot is exceedingly firm and steady ; it requires no precise adjustment of the length of the bars (which would take perfectly firm bearing if the lengths of one or of several were erroneous, even to the amount of one or two feet), and is therefore made at small expense ; and I would propose it for adoption in any other similar case. In the detail of workmanship I would propose as an improvement, that the three radial bars of the lower triangle should not be united at the center, or should be omitted entirely ; and that the three angles of the lower triangle should be widened into broad thick plates, each admitting of a vertical hole in each side, through which the points of the rods G should pass : these points having screws cut upon them, and the rods G being drawn down by nuts below the horizontal triangle.

FIGURE 5 is a plan of the lower fixed-circle, as viewed from above.

O, O, O, are the three cast-iron blocks, weighing 36 lbs. each, in which three spokes of the circle rest. These are solid blocks, having projections below which enter into the stone capping of the central pier and are fixed there with plaster of Paris, and whose tops are cut each with a furrow to receive the spoke of the circle. A very little consideration will shew that there is but one position in which three given spokes can rest in three given furrows. These blocks have no adjustment whatever, and their furrows were cut to the proper depth by filing. The circle being dropped into them, the horizontality of its graduated limb was examined by means of a spirit-level. When it was discovered which side was too high, the circle was raised, the furrows nearest to the high part were filed, and the circle was lowered and again examined in the same manner, till it was brought sufficiently near to horizontality.

P, P, P, are three of the spokes of the circle, resting in the furrows.

Q is the dove-tail furrow turned in the circle, for the insertion of the band of silver upon which the graduations are cut. The divisions are to every 5′ : the numeration of the divisions is in a continuous series from 0° to 360°, in the direction N., E., S., W., N.

The spokes, the cylindrical ring, and the flat circle, are of rather hard gun metal, cast in one piece. The weight of this cast is 441 lbs.

R is a circle with interior toothed-wheel (in which act the pinions X, X, figure 8, for moderately-slow motion in azimuth), screwed upon the solid cast circle. To avoid confusion, the teeth are not represented in figure 5 : but in figure 5 *a* they are represented in full size.

[Since the preparation of this plate, the chronographic method of observation has been introduced, and the following addition to the lower fixed-circle has become necessary. Two brass rings, whose diameter is a little less than that of R, are fixed upon the fixed-circle, insulated by gutta percha from the fixed-circle and from each other. To each of these brass rings a wire is soldered ; these are led, first in a chase cut in the central pier, and afterwards in convenient directions, to join the wires which are led from the touch-piece of the transit circle to the galvanic magnet of the chronograph barrel. The touch-pieces of the altazimuth will be mentioned shortly (description of figure 9).]

FIGURE 6 is a plan of the lower fixed-circle as seen from the lower side : it requires no explanation.

FIGURE 7 is a vertical section of the lower fixed-circle. The teeth of the toothed-wheel R are shown in view ; and two of the blocks O are also seen, one of which exhibits its furrow as viewed obliquely. The perforation at the center of the circle is for the bearing of the lower pivot of the revolving frame and for the counterpoise machinery, which will be explained in reference to figure 9.

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y, a friction-wheel, turning in the frame **x** and supporting the pivot **t**. [This has been changed for a frame carrying two friction-wheels.]

FIGURE 11 is an elevation of the inner flat plate of that vertical cheek which carries the microscopes.

o, o, o, o, o, are portions of the external semi-cylindrical plate seen through the large openings of the inner plate.

z, z, are the holes through which the level-bars **j, j** pass.

a is the hole in the semi-cylindrical plate through which the pivot of the vertical circle passes.

b, b, b, b, are the four micrometer-microscopes. The description of T, T, T, T, figure 8, applies in every respect to *b, b, b, b*. The microscopes are marked A, B, C, D, in the order of the graduations of the vertical circle (see figure 18, below), A being the upper microscope which is nearest to the observer when the graduated face of the vertical circle is right.

c is the pointer microscope, for reading the integer divisions. Its reflector only is seen in this view : it is screwed upon the iron cheek.

The vertical cheek, the microscopes, the brackets which carry the levels, and the bracket which carries the Y for the pivot of the vertical axis, are all in one cast of metal. The weight of this cheek is 429 lbs.

FIGURE 12 is an elevation of the inner flat plate of the other vertical cheek.

d is the clamping-ring for the clamp of the vertical circle.

e is a toothed wheel, in which acts the pinion *n* (figure 18), carried by the vertical circle.

d and *e* are upon a plate of gun-metal which is screwed to the iron plate.

The weight of this cheek is 421 lbs.

FIGURE 13 is a horizontal section, on a larger scale, through one side of the toothed wheel and clamping-ring of figure 12, in the direction of a horizontal diameter of the toothed wheel. The ends of the teeth of the wheel *e* are seen in perspective here: their points or ridges being seen in figure 12.

FIGURE 14 is a horizontal section of the vertical cheek which carries the microscopes and the levels parallel to the plane of the vertical circle ; with view (from above) of the lower pair of microscopes and lower level. The levels parallel to the plane of the vertical circle are of the ordinary English construction, the glass tube being fitted into a tube of thin brass by the insertion of plaster of Paris. The ends of the brass tube are connected with more solid pieces of brass, and these are screwed down to the brackets **q q**, the bearing being at one end upon two points between which the pressing-screw acts, and at the other end upon a thin ring surrounding the screw. There is no screw-adjustment; the adjustment was made by filing. The numeration of the level-scales is in a continuous series of numbers proceeding from right to left. The scale of the lower level (here shewn) is marked E, F: that of the upper level G, H. In front of the level is seen the glass shade, intended principally to protect the level from the heat of the lamp β in figure 22. I propose at some time to change this construction of levels for the German construction (in which the glass tube rests in Y's) adopted in the levels upon the base-plate shewn in figure 9. The latter levels were at first constructed on the English form, and, being very long, shewed very strikingly the defects of that construction, not only by the instability of their readings, but also by the changes in the value of the scale-divisions: and it was there found absolutely necessary to change the construction for the superior German construction. Hitherto no absolute necessity for the change of construction of the other levels has been felt ; but it will doubtless be prudent to make the change. [The change has been made, and all the levels now in use are on the German construction.]

The form of the ends of the microscopes (which is the same as for the microscopes T, figure 8) may also be seen. A thin tube of brass, lined with white enamel, and so long as very nearly to touch the divided limb (leaving the smallest possible interval) surrounds the microscope and is screwed to it : in one side of it is a hole for the admission of light ; and within it is a reflector of the usual form, but covered with white enamel. The effect of this construction is, that, when sufficient illumination is used, the divisions are seen as dark strokes upon a light ground, without any appearance of specular reflexion and without any bright lines at their edges. The idea of this mounting of the illuminators was borrowed from instruments which I saw in Germany.

I will make one more remark common to all the microscopes of this instrument. The only adjustment which has been possible in the mounting of the object-glasses is, to put them in focus without attempting to give any definite values to the divisions of the

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microscope-micrometers. The values of these divisions are therefore determined by trial, and they are (as might be expected) different for the different microscopes, and have no near relation to the ordinary sexagesimal divisions.

FIGURE 15 is a front view, on a larger scale, of one of the brackets supporting a Y, with the Y, the nut that draws it downwards, and the pivot. In the center of the pivot is a small plate carrying a fine dot, to be observed by the micrometer-microscope *z* (figure 22), for ascertaining the movements and consequently the form of the pivot. On the unperforated pivot, this plate is carried by the piece of metal which closes the pivot: on the perforated pivot, it is carried by a piece of glass which closes the pivot.

FIGURE 16 is a view from above of the cast-iron upper plate of the revolving frame.

f, f, &c., are the ribs diverging from the center.

g, the flange, which is bolted to the flange **p** of the vertical cheeks, figure 10.

h, h, two cast-iron ribs (in the same cast of metal) upon which the upper levels are mounted.

i i, i i, two levels, similar in construction to that shewn in figure 14. The numeration of their scales proceeds continuously from the end next the vertical cheek which carries the microscopes to the other end. The level which is nearest to the observer when the graduated face of the vertical circle is right is marked **i, k**; the other is marked **l, m**.

j, j, the roofed glass shades over the levels.

k, the upper pivot, of gun-metal, which turns in the Y marked N, figures 3 and 4.

FIGURE 17 is a section through the upper plate, in its longest direction. It exhibits the method of fixing the upper pivot. The weight of the upper plate and pivot is 189 lbs.

FIGURE 18 is a side-view of the gun-metal vertical circle and telescope on the side opposite to that which carries the divided limb.

l, l, &c., are curved spokes of the circle.

m is the clamp, which takes hold of the ring *d*, figures 12 and 13.

n is the toothed pinion which acts in the toothed wheel *e*, figures 12 and 13. This toothed pinion is intended to give a moderately-slow motion to the vertical circle; it is used for the observation of transits in azimuth across the vertical wires, to insure that the transits take place across the middle of the wires. There is no very-slow motion in zenith distance.

o, the object end of the telescope, in the same cast of gun-metal with the greater portion of the circle. The object-glass is screwed into this.

p, the eye end, in the same cast of metal. The intermediate part of the telescope is a tube of thin brass.

q, the eye piece, of brass, screwed into *p*.

r, a projecting plate, with a small eye hole, and *s* a projecting ring with a larger hole. These two holes constitute the finder of the telescope.

It does not appear necessary to give a view of the other side of the circle, as it contains nothing peculiar except the graduated limb. The divisions are to every 5′: the numeration proceeds from 0° to 360°, in the order opposite to that of a watch-dial.

FIGURE 19 is a view of the vertical circle in the plane of the circle, the object-glass being in view.

t is the drum or intermediate part of the circle.

FIGURE 20 is a view of the eye-end, on a larger scale.

u is a rapid screw, by which the first slider is carried horizontally across the wires.

v is a pinion mounted in the first slider, and acting in a rack attached to the second slider, by which the second slider is carried vertically over the wires.

w, the eye-piece, carried by the second slider. The parallel lines across it represent the groove in which dark glasses for observations of the Sun can be placed.

The system of wires in the eye-piece consisted originally of six horizontal wires at intervals of 2′ very nearly, and of six vertical wires at intervals of 4′ very nearly. [But since the chronographic method of observation was introduced, other wires at smaller intervals have been inserted in the middle spaces of the original wires. The details of these will be given below.]

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Diameter.	Relative Error.	Absolute Error.
° °	"	"
30 — 210	— 0·70	— 0·30
60 — 240	— 0·94	— 0·14
120 — 300	+ 0·21	+ 1·01
150 — 330	— 0·17	+ 0·23
75 — 255	+ 0·29	+ 1·73
105 — 285	+ 0·22	+ 1·33
165 — 345	+ 0·36	+ 1·47
195 — 15	— 0·45	+ 0·99

(δ). Two microscopes *r* and *s*, whose construction admitted of their being brought within 5°, were clamped upon the base-plate at an interval of 5°, and by three steps of this arc an arc of 15° was covered. This was repeated five times for each arc. The process is in every respect the same as under (γ), except that diameters were not used, and therefore there was no taking of means in opposite positions or for opposite microscopes. The results are as follows :—

Division.	Relative Error.	Absolute Error.
°	"	"
5	— 0·53	— 0·20
10	— 0·22	+ 0·44
20	+ 0·04	+ 0·60
25	+ 1·33	+ 1·46
35	+ 0·75	+ 1·13
40	+ 0·88	+ 1·95
50	— 0·39	+ 0·73
55	+ 0·35	+ 0·84
65	0·00	+ 0·49
70	+ 0·39	+ 1·49
80	— 0·49	+ 1·06
85	— 0·71	+ 0·67
95	+ 0·09	+ 1·33
100	+ 0·08	+ 1·37
110	+ 0·43	+ 1·66
115	— 0·16	+ 0·95
125	+ 0·29	+ 1·23
130	+ 0·42	+ 1·29
140	— 0·61	0·00
145	— 0·38	+ 0·04
155	— 0·18	+ 0·46
160	+ 0·52	+ 1·58
170	— 0·25	+ 0·73
175	+ 0·44	+ 0·93
185	— 0·63	— 0·30
190	+ 0·43	+ 1·09
200	— 0·35	+ 0·21
205	+ 0·42	+ 0·55
215	+ 0·15	+ 0·53

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Division.	Relative Error.	Absolute Error.
°	″	″
220	+ 0·09	+ 1·16
230	+ 0·55	+ 1·67
235	+ 0·49	+ 0·98
245	+ 0·43	+ 0·92
250	+ 0·14	+ 1·24
260	+ 0·14	+ 1·69
265	+ 0·26	+ 1·64
275	+ 0·29	+ 1·53
280	+ 0·47	+ 1·76
290	− 0·64	+ 0·59
295	− 1·43	− 0·32
305	− 0·14	+ 0·80
310	− 0·03	+ 0·84
320	+ 0·94	+ 1·55
325	+ 0·32	+ 0·74
335	− 0·54	+ 0·10
340	+ 0·43	+ 1·49
350	− 0·43	+ 0·55
355	− 0·06	+ 0·43

Remarking now that, by the process of reading the four microscopes, **a**, **b**, **c**, **d**, in all cases, the actual result of the error on the estimated position of the instrument will be the mean of the four errors for divisions 90° apart, we get the following Errors of Circle Reading.

Division under **a**.				Error.	Division under **a**.				Error.
°	°	°	°	″	°	°	°	°	″
0,	90,	180,	270,	+ 0·60	45,	135,	225,	315,	+ 1·27
5,	95,	185,	275,	+ 0·59	50,	140,	230,	320,	+ 0·99
10,	100,	190,	280,	+ 1·17	55,	145,	235,	325,	+ 0·65
15,	105,	195,	285,	+ 1·16	60,	150,	240,	330,	+ 0·05
20,	110,	200,	290,	+ 0·76	65,	155,	245,	335,	+ 0·49
25,	115,	205,	295,	+ 0·66	70,	160,	250,	340,	+ 1·45
30,	120,	210,	300,	+ 0·35	75,	165,	255,	345,	+ 1·60
35,	125,	215,	305,	+ 0·92	80,	170,	260,	350,	+ 1·01
40,	130,	220,	310,	+ 1·31	85,	175,	265,	355,	+ 0·92

It appeared that these apparent errors were not sufficiently large or sufficiently certain to require systematic correction in the Reduction of the Observations.

A microscope had been prepared for examination of every division, consisting of two optical arrangements in one barrel, at the interval of 1° very nearly (by which it was intended to quinquesect the arcs of 5°), and of two sets of wires carried by one micrometer-screw, at the interval of 5′ very nearly (by which it was intended to measure the interval from each division to the next). But, remarking that the circle was divided by the Dividing Engine, in which (from the nature of the screw-motion by which the circle is carried under the cutter) it is almost certain that the errors of division will very nearly follow a continuous law, and remarking the smallness of the errors at every 5°, it did not appear desirable to go through this laborious process.

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Computing the values of these formulæ for the pointer-readings 5°, 15°, &c., and comparing them with the quantities measured, we find the following values for the residual errors z', z'' :

Pointer Reading.	z'	z''	Pointer Reading.	z'	z''	Pointer Reading.	z'	z''	Pointer Reading.	z'	z''
°	r	r	°	r	r	°	r	r	°	r	r
5	+·056	−·042	95	+·027	+·063	185	−·064	+·025	275	−·011	−·050
15	+·024	+·006	105	−·018	+·046	195	−·041	−·013	285	+·019	−·038
25	+·008	+·035	115	−·056	+·026	205	−·036	−·037	295	+·041	−·011
35	+·047	+·048	125	−·056	+·011	215	−·028	−·062	305	+·039	−·007
45	+·025	+·066	135	−·084	+·026	225	+·005	−·059	315	+·053	−·083
55	+·035	+·095	145	−·069	+·015	235	000	−·072	325	+·051	−·061
65	+·056	+·088	155	−·069	+·011	245	−·004	−·046	335	+·052	−·048
75	+·044	+·086	165	−·087	+·005	255	+·002	−·068	345	+·061	−·042
85	+·028	+·093	175	−·091	+·019	265	−·019	−·046	355	+·061	−·016

These are the irregularities in the motion of a point the nearest possible to the center of the pivot, depending upon nothing, but the irregularity of form of the pivots and the errors of observation. The law of the irregularities (as well as that of the discordance between b' and b'', c' and c'') would seem to shew that the two positions of the micrometer were not exactly at right angles ; this assumption, with a proper amount of error of position, would reduce z' and z'' almost to zero.

(β). Proceeding in exactly the same manner with the pivot on the same side as the graduated face, the horizontal measures increasing to the right, and the vertical measures increasing upwards, we get the following residual errors :

Pointer Reading.	z'	z''	Pointer Reading.	z'	z''	Pointer Reading.	z'	z''	Pointer Reading.	z'	z''
°	r	r	°	r	r	°	r	r	°	r	r
5	−·009	−·022	95	+·017	+·014	185	+·008	+·045	275	+·016	−·002
15	−·010	−·032	105	+·027	+·001	195	+·003	+·040	285	−·025	−·006
25	+·012	−·017	115	+·046	−·005	205	−·005	+·014	295	−·014	−·008
35	+·002	−·020	125	+·038	−·007	215	−·009	+·008	305	−·001	−·005
45	+·005	−·014	135	+·033	−·007	225	−·023	+·009	315	−·002	+·006
55	+·014	−·023	145	−·002	−·028	235	−·044	−·010	325	000	+·018
65	+·014	−·015	155	−·009	+·009	245	−·009	−·003	335	−·007	−·003
75	+·013	−·006	165	−·009	+·029	255	+·002	−·009	345	000	−·011
85	−·004	+·015	175	+·004	+·065	265	−·008	−·013	355	−·028	−·012

It was found by trial of the microscopes on the limb of the horizontal circle (radius 18 inches), that, in the mean of the two $6^r{\cdot}206 = 5'$. Hence in respect to the movement of the horizontal axis of the vertical circle, whose length is 38·75 inches, $1^r{\cdot} = 22''{\cdot}45$ nearly. The greatest apparent error in the position of the axis (which will be the sum of the corresponding values of z' for the horizontal error or of z'' for the vertical error) is $z' + z'$ for pointer-reading 165°, and amounts to $0^r{\cdot}096$, or $2''{\cdot}1$. The amount of the vertical errors (which are more important) is considerably less. On the whole it has appeared unnecessary and unsafe to attempt to make any correction to the observations for this possible cause of error.

Subsequent examinations conducted in exactly the same way have indicated smaller errors.

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IV. Determinations of the values of the level-scales, and changes of the levels.

On 1847, March 12 and 13, the levels were taken off the instrument, and were placed upon a level-prover, lent by Mr. Simms, whose scale was determined by our own measures. The results for the values of one division were—

For $E-F$	1″·1996
$G-H$	1·1395
$e-f$	1·1802
$g-h$	0·9020
$i-k$	0·9857
$l-m$	0·9346

These values were used for a time in the reduction of the observations. On comparing, however, the changes in the position of the vertical axis shown by the levels $e-f$, $g-h$, $i-k$, $l-m$, in rapid reversion of the instrument, it was found that their indications were so different as to show that the curvatures of the glass tubes of the levels when mounted on the instrument were different from what they were when placed on the level-prover. To obviate this, on May 28, blocks of wood were placed on the telescope of Troughton's circle, and the levels were screwed upon these as nearly as possible in the same manner as when mounted on the instrument. The results for the values of one division were now as follows :—

For $E-F$	1″·1797
$G-H$	1·0040
$e-f$	1·1037
$g-h$	0·7040
$i-k$	1·1864
$l-m$	1·1350

The reductions of the observations which had been made with the former values of the level divisions were at once recomputed with these values. The values thus found for $E-F$ and $G-H$ have still been retained ; and those for $e-f$, $g-h$, $i-k$, $l-m$, were retained to 1847, November 10.

The levels up to this time were made on the common English construction, the glass tubes being fixed by plaster in brass tubes ; and to the ends of these brass tubes were attached more solid pieces of brass, which were screwed down, with a flat bearing, to the supporting parts of the instrument. It was found, however, in the months of May and June, that the levels, especially the longest $e-f$, $g-h$, were perpetually changing their zero, and that this zero was altered by forcing the attaching screws. On June 10, therefore, the bearings of all the levels were altered in such a way that one of the solid brass ends rested upon two points, midway between which the pressing-screw acted, and the other upon one point, or rather upon a small ring surrounding the pressing-screw ; and from this time the anomalies which I have mentioned disappeared.

Still it was evident that the levels $e-f$, $g-h$, were too infirm to be trusted ; and the observations made during a journey on the continent having suggested the advantages which would be derived from the adoption of the German construction, on November 14 new levels were mounted in the place of $e-f$, $g-h$, in the form which is explained in the description above.

Mr. Simms having expressed his confidence in the correctness of his values of the scales of the new $e-f$, $g-h$, as well as of $i-k$, $l-m$, intended to represent 1″ in each division, it was thought prudent to adopt those values ; and accordingly from that time each division is supposed to be equal to 1″. The following comparisons have been made for the purpose of testing the accuracy of these adopted values. In all the instances in which a considerable change in the levels was produced by reversing the instrument, the amount of that change in level-divisions was taken from the different levels, and all were grouped together for each level.

For $E-F$ and $G-H$.

By the mean of 80 reversions between May 23 and December 27, 30·61 divisions of $E-F$ corresponded to 36·66 divisions of $G-H$. These numbers require values differing a little more than those given above.

[$E-F$ and $G-H$ have now been changed for levels on the German construction, with scale-divisions = 1″.]

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For $e-f$, $g-h$, $i-k$, $l-m$.

By the mean of 80 reversions between 1847, November 15, and 1848, June 15, the following numbers of divisions were found to correspond :—

$e-f$	$g-h$	$i-k$	$l-m$
37·41	38·66	36·93	39·44

These agree nearly enough; and the two lower levels, considered as one group, agree almost exactly with the two upper levels, considered as another group.

V. Determination of the relation of the position of the axis of the vertical circle to the axis of revolution in azimuth.

It will be seen hereafter that the observations of stars give the means of determining the level-reading for the mean of $e-f$, $g-h$, $i-k$, $l-m$, corresponding to the horizontal position of the axis of the vertical circle. As these observations cannot always be obtained, and as mean level-readings for the vertical position of the axis of revolution can always be obtained by reversion, it appeared desirable to compare them, so as to be able to infer the former from the latter. By fourteen comparisons between May 21 and June 22, it appeared that the latter exceeds the former by $+2''\cdot54$; this number was used where necessary from May 16 to June 22. From May 21 to July 8, 18 comparisons gave $+2''\cdot18$; this was used from June 23 to July 8. From July 18 to September 4, 17 comparisons gave $+0''\cdot35$; this was used from July 18 to September 6. From July 18 to October 7, 24 comparisons gave $+0''\cdot14$; this was used from September 14 to October 7. From October 18 to November 5, seven comparisons gave $-1''\cdot49$, which was used from October 13 to November 5. From October 18 to November 10, eight comparisons gave $-1''\cdot55$, which was used on November 10. During the remainder of the month of November the zero derived from the reversion was not used, as it appeared uncertain. From December 11 to December 16, three comparisons gave $-1''\cdot63$, which was used from December 11 to December 31.

It would appear from the progression of these numbers that the Y's, or (less probably) the pivots of the Vertical Circle, have worn unequally. [See the *Greenwich Observations* 1865, Introduction, p. lxxxix.]

VI. Alteration of the counterpoises of the axis of the Vertical Circle, and alteration of the object-glass.

The irregularity of the Zero in Azimuth having made it probable that the pivots of the Vertical Circle were not pressed into their Y's with sufficient force, on July 15 about one-third part of the counterpoises was cut off. The object-glass was also taken off for examination, and apparently was not replaced accurately in the same position.

VII. Determination of the Intervals of Wires in the Eye-piece of the Telescope.

(α.) For the intervals of horizontal wires, or those used in the observation of vertical transits.

Fifty vertical transits of stars, from July 21 to November 18, were treated in the following manner :—The means of the wires having been previously formed, the interval between each wire and the mean of all was taken. As in different observations these transits occur in different orders on the wires, it was necessary to adopt one order of passage as the standard. The order adopted for the wires I., II., III., IV., V,. VI., is that in which stars pass which are West of the Meridian, the graduated face of the Vertical Circle being Right : when one only of these conditions is changed, the passage takes place in the opposite direction. Due respect was given to this consideration in taking out the intervals between the transit over each wire and the mean of all. The vertical movement of a star in 1^s of sidereal time is $15''\times\cos$ latitude $\times$ sin azimuth from North or South. Hence the angular interval of each wire from the mean, in seconds of arc, is

Observed interval in seconds of time $\times\ 15''\times\cos$ latitude $\times$ sin azimuth.

This calculation being performed for every interval of each of the stars, and the mean of the results being taken, the distances of the wires from the mean of wires were found to be as follows :

	"
Wire I.	+ 300·43
II.	+ 180·70
III.	+ 59·78
IV.	− 59·85
V.	− 180·18
VI.	− 300·79

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[The intervals of wires used in observations by eye and ear, in 1868, are as follows :—

Wire Q	− 301·06
R	− 179·94
S	− 61·49
X	+ 62·97
Y	+ 178·52
Z	+ 300·99

The intervals of wires used in chronographic observations,—

S	− 61·93
T	− 37·53
U	− 13·72
V	+ 12·92
W	+ 37·76
X	+ 62·53]

§ (β). For the vertical wires, or those used in horizontal transits. The process of taking the interval of time between each wire and the mean of all was the same as in the former case. But as no stars are observed higher than the pole, the horizontal motion of stars is always in the direction N., E., S., W., N. ; and therefore it was necessary to discriminate the transits only by the position of the instrument. The position adopted for the order of the wires 1, 2, 3, 4, 5, 6, is that in which stars pass when the graduated face of the Vertical Circle is right. The square of the horizontal movement of a star in one sidereal second, is found by subtracting the square of the vertical movement just found from the square of the whole movement, or $(15'' \times \sin \text{N. P. D.})^2$. Hence, distance of a wire from the mean of wires = interval of time $\times 15'' \times \surd \{\sin^2 \text{N.P.D.} - \cos^2 \text{lat.} \sin^2 \text{azimuth}\}$. The latter term is calculated easily by the use of an auxiliary angle θ, such that $\sin \theta = \cos \text{lat.} \sin \text{azimuth.} \operatorname{cosec} \text{N.P.D.}$ Treating 50 transits in this manner, from July 21 to September 22, the intervals in arc of each wire from the mean of wires were found to be as follows :—

Wire 1	+ 600·04
2	+ 363·04
3	+ 121·43
4	− 120·89
5	− 361·63
6	− 601·93

[The intervals of wires used in observations by eye and ear, in 1868, are as follows :—

q	− 601·33
r	− 359·78
s	− 121·48
x	+ 120·54
y	+ 359·58
z	+ 602·45

The intervals of wires used in chronographic observations :

s	− 120·32
t	− 73·49
u	− 25·47
v	+ 24·57
w	+ 72·79
x	+ 121·80]

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VIII. Examination into the effect of the heat of the Lamp, carried by the Instrument, upon the radial bars of the upper triangle which carry the Y for the upper pivot of the azimuthal axis.

On March 10 and March 11 observations were made, the instrument being so turned that the lamp was immediately under one of the bars. In both the effect was the same: that in 15^m of time the readings of the levels $e - f$, $g - h$, diminished about $2''$, showing a corresponding expansion of the radial bar. As this expansion does not in itself produce any injurious effect (as the only possible injury would be in the change of position between the observation with the telescope and the reading of the levels, or during a very short time), and as the general unsteadiness depending on it is insignificant, no attempt has been made to shield the bars.

G. B. AIRY.

Royal Observatory, Greenwich,
1868, January.

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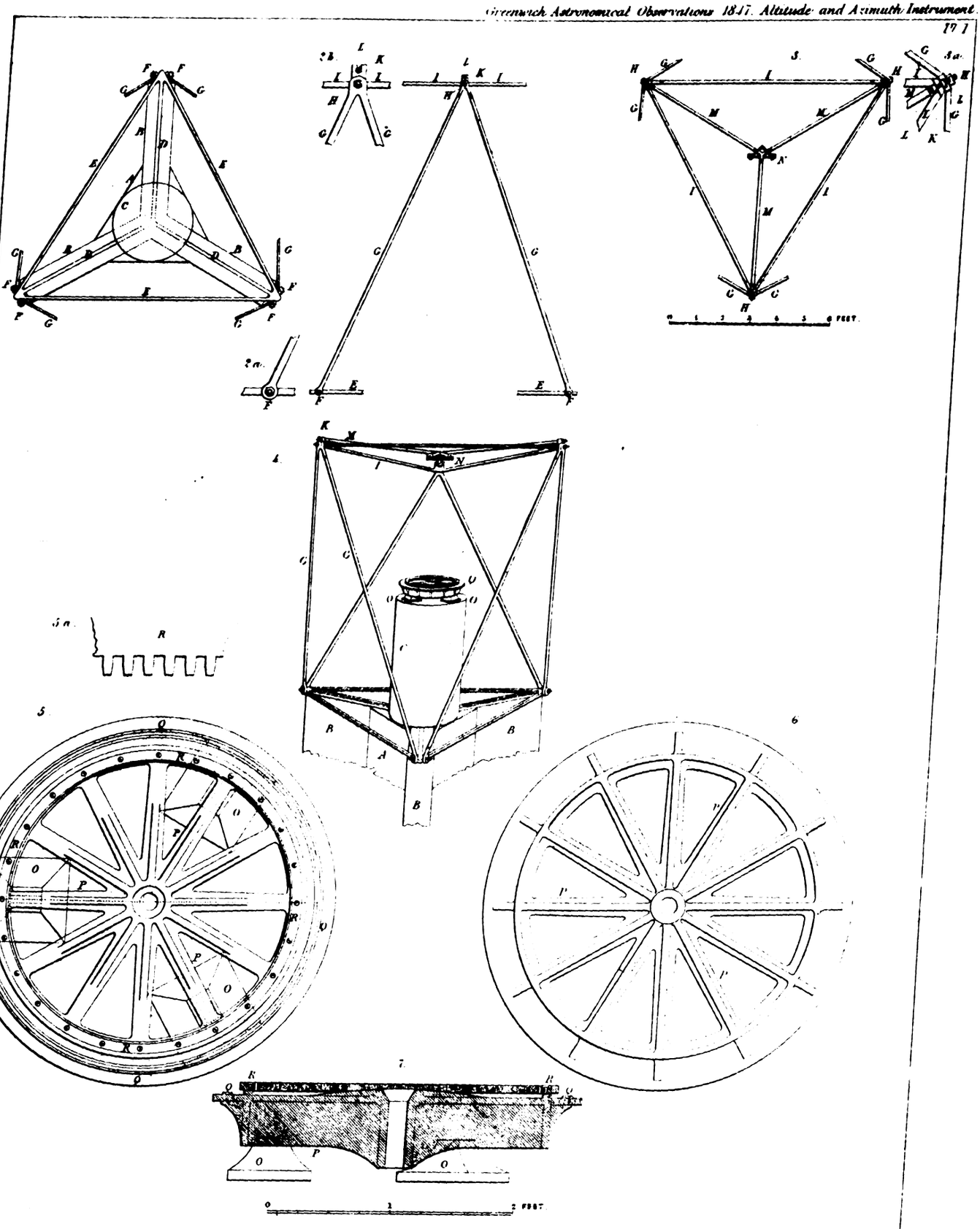
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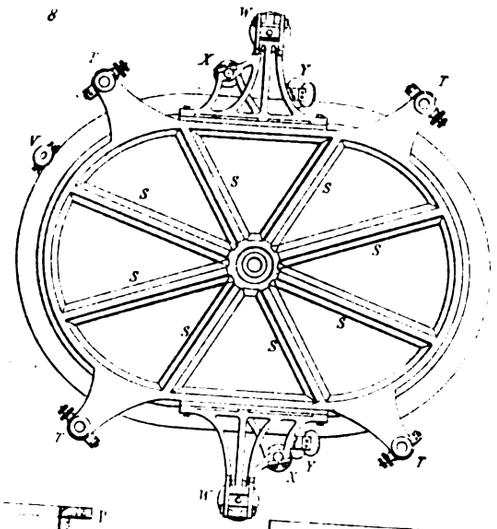

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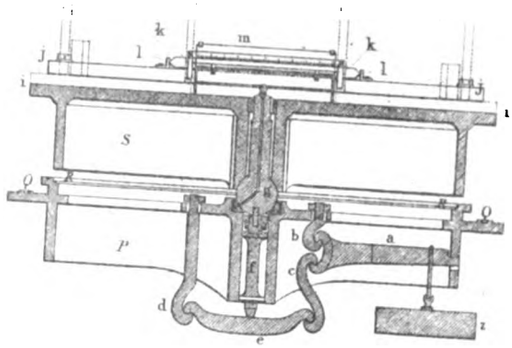

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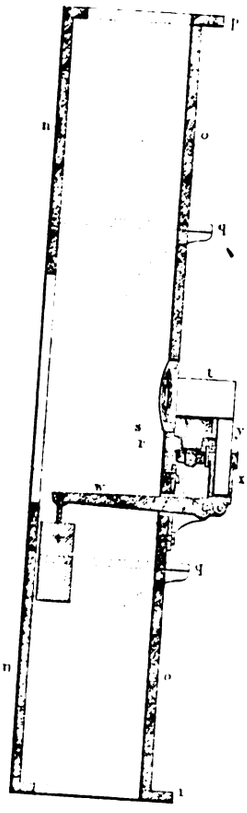

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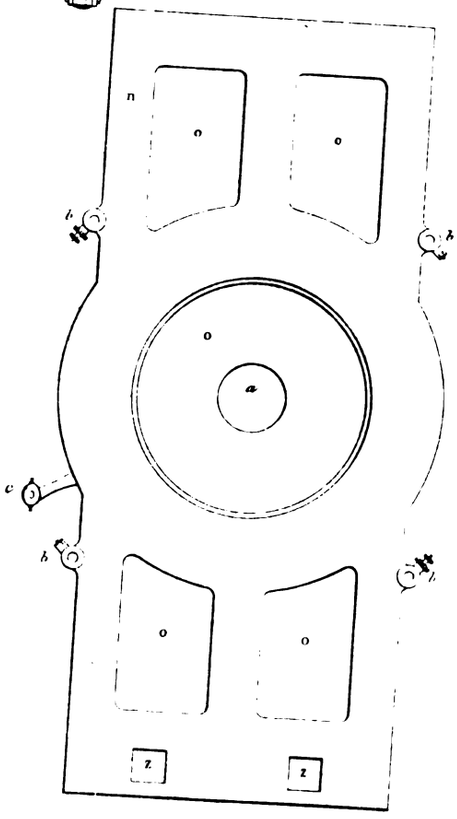

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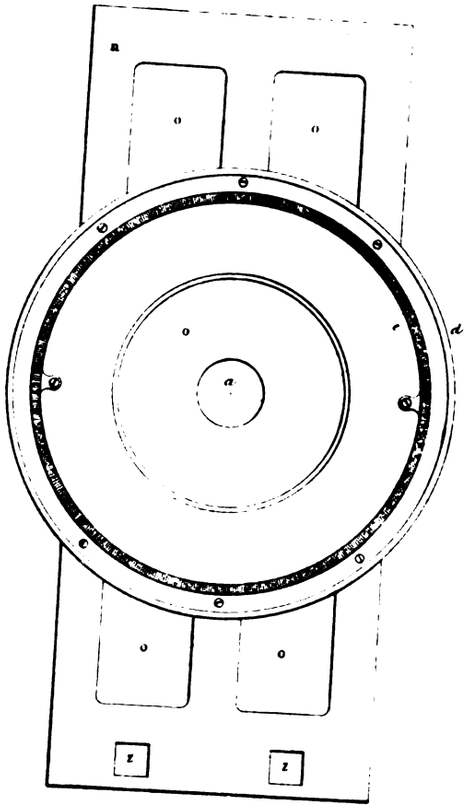

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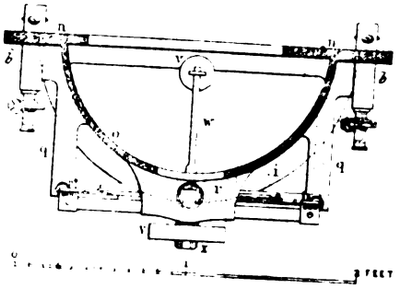

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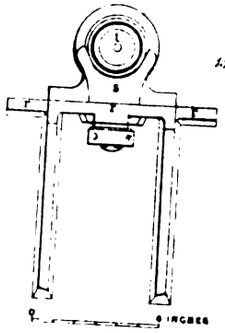

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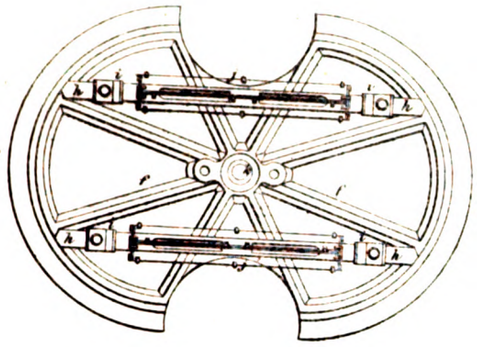

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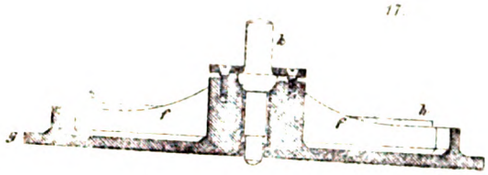

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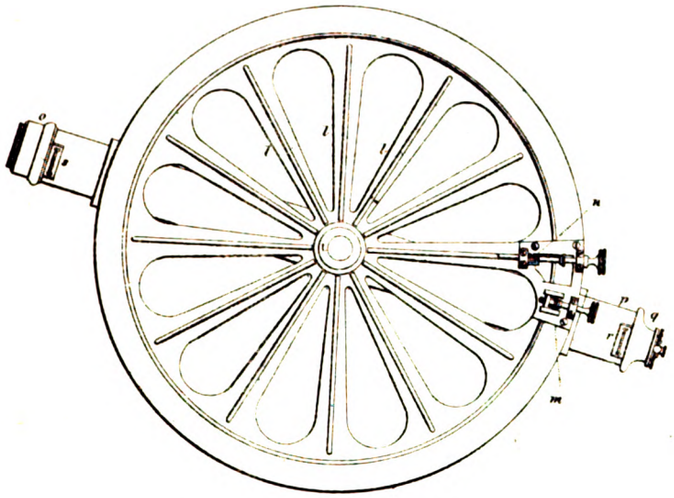

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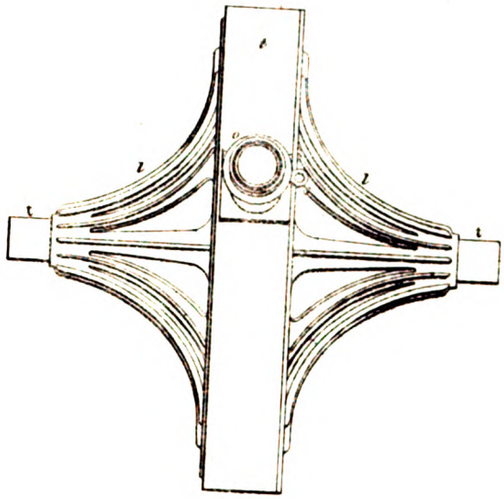

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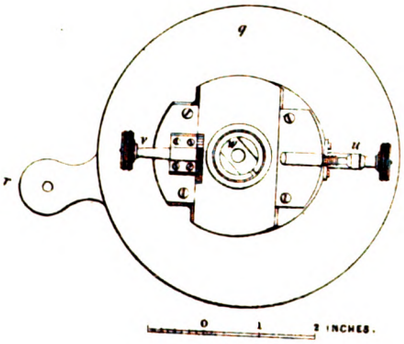

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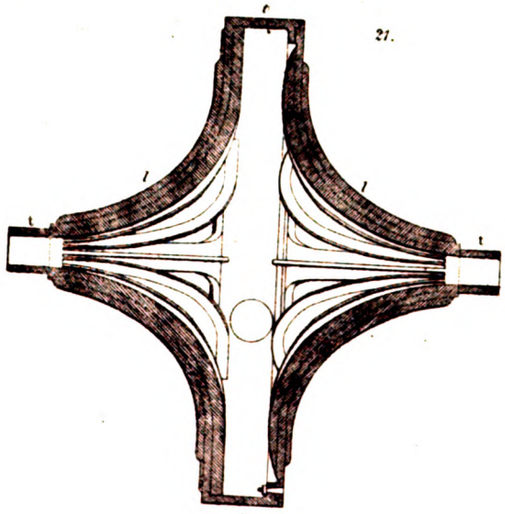

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DESCRIPTION

OF THE

TRANSIT CIRCLE

OF THE

ROYAL OBSERVATORY, GREENWICH.

ORIGINALLY PUBLISHED AS APPENDIX TO THE GREENWICH OBSERVATIONS, 1852.

20796.

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At the extreme left of the drawing is shown the pier carrying the north collimating-telescope. The axis of the telescope is at the same height as the axis of the transit-circle, and the object-glass is turned towards the transit-circle. The wooden box which covers the telescope is supposed to be removed. [It will be mentioned below that a larger collimating-telescope is now substituted.]

In the upper and left-hand portion of the drawing is seen the machinery for opening the roof-shutters. The roof-opening is along the ridge of the roof; it is covered by four shutters, opening on hinges upon the eastern side; the drawing shows two of these closed and one open. The interstice between two adjacent shutters is covered by a supplementary flap, which is raised by either of the neighbouring shutters; one of these flaps is partially seen in the drawing as raised by the raised shutter. The machinery for opening and closing the raised shutter is shown. At a convenient height above the floor there is fixed to the wall a frame carrying a winch, on whose axis is a pinion driving a toothed-wheel, and upon the axis of this toothed-wheel is a pinion acting in a rack which forces a rod up or down. The upper end of this rod is connected with a bridle-rod, whose centre of motion is at the top of the wall; and from the point of connexion a rod leads to the extremity of a short lever-arm, which is carried by a horizontal spindle that turns in bearings fixed to the lower side of one of the ridge-beams. Near each extremity of this spindle is fixed a long crooked bar, of which one end acts (by a jointed connecting-rod) to support the shutter, and the other end carries a counterpoise. Upon the toothed wheel frame is a bell; in the movement of the winch either for opening or for closing the shutter, when the movement is *nearly* completed, a hammer strikes the bell, as a warning to the person who turns the winch that he must move it gently. A large iron forked hook, whose centre of motion is on the wall, is so placed that, either when the shutter is closed or when it is fully opened, the hook will lodge upon the winch-handle, and will thus effectually secure the shutter in its position.

PLATE II. is a view of the Transit-Circle from the south-east, the ladders being removed, and the roof pillars being broken off.

On the right side is the eastern pier. The wing-walls and the intersecting iron arches are seen in reverse, and the triangular frames which support them are seen. . The machinery at the top of the pier is also seen. Between the standards that carry the large wheels and the chain, there is a horizontal bar, above the ordinary counterpoise-lever, from which two slender rods pass down into the pier (these are also seen on the western pier, and less perfectly on the piers in Plate I.): these rods are for the purpose of lifting the cap which covers the transit-pivot. The plate which projects from the eastern pier towards the instrument and carries the clamp is seen partly behind the pillar that supports the intersecting arches; the hook's-joint spindle bears a bevelled-wheel, which works in another bevelled-wheel that drives a screw which pinches the rim of the clamping circle.

To the left is the western pier. Upon the top is seen the same machinery as upon the eastern pier (now somewhat altered, as described for Plate I.); but there is also a smooth vertical hand-wheel for slightly turning a spindle connected with the wheelwork that drives the bevelled-wheel-nut (see the eastern pier in Plate I.), by which the screw-cut large rod for lifting the transit-circle is drawn up. At the centre of the vertical-wheel there is jointed-on a crank-rod; which at present is lifted to a nearly vertical position, in order to leave the space between the piers free from obstruction. When the instrument is to be raised, the upper end of the crank-rod is brought down to the eastern pier, and is locked into the corresponding spindle of the machinery on the eastern pier; and then, by applying the hand to the crank and turning it, both pivots of the transit-circle are raised simultaneously and by equal degrees. Opposite to the graduated circle of the transit-circle are seen the tubes carrying the object-glasses of the microscopes. There are short tubes fixed to the pier, having external flange-ends, upon which are fixed other short tubes by means of broad-headed screws in large holes, allowing of adjustment, both radially and circumferentially; and in these tubes slide the object-glass-tubes, which thus can be adjusted to focus. Of the eleven microscopes, five are seen in this view. P is the pointer-microscope, or microscope for reading the whole number of divisions; B and D are ordinary reading microscopes, 60° apart; β and b are microscopes distant respectively 20° and 25° from B, used only in the examination of the graduation. Corresponding to every microscope there is, at a small distance, radially nearer to the centre, a hole through the pier; this hole is to permit the light of the central lamp (shown on the outside of the western pier in Plate I.) to fall upon those divisions which are viewed by the microscope. Immediately below microscope P, a bracket carries a small setting-pointer, which is directed to a rough graduation on the side of the graduated circle furthest from the pier. At mid-height of the pier is an inclined channel, cut in the face and end of the pier. In this channel are two galvanic wires; their higher extremities communicate with two springs (seen partly behind the graduated circle), by which connexion is made with a contact-piece on the eye-end, for use in the American or chronographic method of transits (as will be hereafter described); and their continuation downwards leads under the floor, and to the recording apparatus in the Chronograph Room.

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Between the piers, at mid-height, is the transit-circle. The object-glass of the telescope is turned towards the spectator. Beyond the telescope are seen, first, the steering-wheel, or wheel for turning the transit-circle, with numerous handles inserted in its circumference; secondly, the graduated circle, whose surface (for a reason to be hereafter explained) is conical. Upon the internal conical surface is the delicate graduation which is viewed by the micrometer-microscopes; upon the exterior conical surface is the rough graduation to which the setting pointer applies.

Between the piers, at the bottom, is the quicksilver-apparatus. Close to the wing-wall is one of the inclined rods; of which the upper ends are seen in Plate I., bearing large counterpoise-weights, and rubbing against the intersecting arches. From this inclined rod there projects a spindle; a similar spindle projecting from the other inclined rod; which spindles carry a horizontal frame. Upon an advanced north-and-south spindle of this frame there turn a pair of levers, whose advanced points carry a pair of pivots in the line of the advanced upper edge of the quicksilver-trough, and whose points next to the pier carry a large cylinder of lead as counterpoise; and upon a lower north-and-south spindle of the frame, near the face of the east pier (not seen in this view), there turn another pair of levers, of the same length as the former, carrying a lower pair of pivots attached to the bottom of the quicksilver-trough. [Since this drawing was prepared, a trifling alteration has been made in the mounting of the quicksilver-trough: all the movements here described are preserved, and there is also given a means of tilting the trough endways.]

Beyond the quicksilver-trough is seen the south moveable stage, its steps being seen in reverse; and at its base are partially seen two of the rollers by which it travels across the pit. Beyond the moveable stage is seen a small portion of the steps for descending into the pit. At the extreme left of the drawing is seen the south collimator. The telescope, and the solid forks on which it is mounted, are precisely similar to those of the north collimator; the form of the pier is slightly different, preserving its full breadth to the end next the transit-circle, in order to leave room for a niche in which the transit-clock is placed.

PLATE III. gives a ground plan of the Transit-Circle-Room and original Reflex-Zenith-Tube-Room; and view of the transit-circle, &c., as seen from above.

A is the entrance-door from the Front Court.

B, the entrance from the Astronomer Royal's official room.

C, the entrance from the Computing Room (by an intermediate passage).

D, the entrance from the Eastern Rooms.

(E, the entrance to the Reflex-Zenith-Tube-Room.

F, the ascent to the Reflex-Zenith-Tube.

G, the elevated platform of the Reflex-Zenith-Tube-Room.

H, the Reflex-Zenith-Tube.)

[The letters E, F, G, H, correspond to the position of the Reflex Zenith Tube at the time of erection of the Transit Circle. The Reflex Zenith Tube has subsequently been erected in a room of nearly the same dimensions in the external re-entering angle south-west of C.]

I, I, I, I, windows.

J, the south wall-shutter, all its parts being supposed to be closed.

K, an iron attached to the large upper division of the wall-shutter at one-third of its height.

L, a horizontal arm of a vertical shaft, which turns in bearings upon the wall, at the same height as K.

M, an iron connecting-rod, connecting the extremities of L and K.

N, a lever-handle, at a convenient height for the hand, by which the vertical shaft is turned, and with it the arm L, which moves the wall-shutter, by the action of the connecting-rod M upon the iron K.

O, a hook fixed to the wall for retaining the lever N in the position which keeps the shutter closed.

P, a hook which retains the lever N in the position proper for keeping the shutter open.

(The letters K, L, M, N, O, P, apply both to the north and to the south shutters.)

Q, the upper portion of the north wall-shutter open; this part opens outwards.

R, the middle portion of the north wall-shutter open; it opens inwards.

S, the lowest portion of the north wall-shutter open; it opens outwards by horizontal hinges, falling downwards. (The southern wall-shutter is similar in its divisions and movements to the northern.)

T, T, T, T, the four frames of toothed-wheel-work for opening the four shutters on the ridge of the roof.

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u, *u*, the points to which are attached the ends of the chains, whose opposite ends support m, m. These points are the upper extremities of the large screw-cut rods of the lifting frame; they are also the fulcra of the levers of the ordinary counterpoises.

v, *v*, the tops of the rods by which the covering-caps of the transit pivots are lifted.

w, *w*, the large vertical grooves in the piers, in which are the large screw-cut lifting rods for raising the instrument, the rods of the ordinary-counterpoise-frame, and the rods for lifting the cap from the pivot (omitted in this section of the piers).

x, *x*, the large holes through the piers, permitting communication of any kind from the outside of the piers to the ends of the transit-pivots. The bearing piece or "Y" of the transit-pivot rests on the bottom of *x*.

y, a 7-foot telescope, as placed in position for looking into the collimator of the transit-circle-axis. It rests upon two forks, which are planted (when occasion requires), one in the hole V in the wall, the other in the hole *x* of the western pier. The collimator-mark is a very minute hole in the small tube which projects from the eastern pivot of the transit-circle; it is illuminated by a small lamp placed in the hole *x* of the eastern pier. The eyepiece of the 7-foot telescope has a micrometer with position-circle, which can be placed so as to measure the ordinate of the image of the minute hole, either in a horizontal or in a vertical or in any other direction.

The telescope of the transit-circle (the two circles being omitted) is represented in the state in which it is used for observing the nadir-point. For this purpose, a trough of mercury below the floor of the observing pit was at first employed: latterly the ordinary mercury-apparatus (Plate IX.) is used. A long eyepiece, with an inclined glass reflector between its lowest lens and the wires of the telescope, is inserted in the eyepiece-socket. The hole in the side of the eyepiece, which admits the light that falls upon the glass reflector, and illuminates the field of view for this operation, is at the same height as the flame of the gas-lamp p.

In this plate is seen a portion of the upper part of one of the posts, W, with the short transversal block upon it, by means of which W supports a principal rafter and one of the ridge-beams.

PLATE VI. gives a Longitudinal Section of the Transit-Circle-Room, showing also the inner face of the Eastern Pier, the Transit-Telescope in two positions, and the two Collimators, but no other parts of the Telescope-Machinery.

Upon the collimator-piers, t and w, are seen the south and north collimators. The transit-telescope, in the position shown by j, k, is directed to the north collimator, and the wires of the north collimator are distinctly visible in it; and in like manner, if its object glass is turned to the south, the wires of the south collimator are visible in it. But when, by the lifting machinery, the transit telescope is raised to the position j′, k′, there is no interruption to the view of one collimator by the other, and the wires of either collimator may be seen in the eyepiece of the other. [It has already been mentioned that the object ends of the new larger collimating telescopes project into the room beyond the edges of the piers, and that their eye-ends touch the shutter S in its closed position].

z, *z*, are the vertical shafts turning in bearings on the end-walls, to which are attached the handles N, by which the shafts are turned, and the arms L, which, acting on the connecting-rods M and the shutter-irons K, open and close the shutters.

A portion of the lower or horizontal moulding and ornaments of the pediment is carried by the shutter Q.

The wall shutters are divided each into three parts, for the following reasons:—It is desirable that the principal part of the shutter should open outwards; because it is more convenient for the interior of the room; because it causes less disturbance in the external architectural arrangements; and because it keeps out the rain more completely. But it was necessary that its lower edge should not come so low as the bottom of the wall-slit, in order to avoid interruption of the paths on the outside of the buildings. The middle division was then made to open inwards, in order that it might close to the upper division with a rabbetted edge. But this division could not extend downwards to the bottom of the wall-slit, because it would, in opening, have come in contact with the eyepiece of the collimator. It was necessary, therefore, to provide a third division; and this, for the sake of a rabbetted edge, was made to open outwards, and, for avoiding interruption of the path, it was made to flap downwards. [That lowest shutter S is now firmly fixed to the wooden pannel below it; and that wooden pannel is attached by hinges to the side of the opening, so that the whole pannel with S can be opened outwards, to give facility for applying the eye to the eyepiece of the collimator].

PLATE VII. gives an Elevation of the Western Face of the Western Pier, in its ordinary state.

γ is the large wheel over which passes the chain, which at one end sustains the large counterpoise m, and at the other end supports the large screw-cut rod for lifting the transit-circle and the fulcrum of the ordinary counterpoise.

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is the end of the ordinary counterpoise.

is the cross-head carrying the rods which, by a friction-wheel-frame, support part of the weight of the transit-circle. ε and ε are at opposite ends of a lever.

ζ is the toothed-wheel-work for raising the transit-circle. By the crank-arm *r*, in Plates V., X., and XIII., the pinion seen to the right in this view is turned; this pinion drives the larger wheel in the centre of the view, and a bevelled-wheel upon the axis of the larger wheel drives the bevelled-wheel-nut (partially seen in this view) which turns in the screw-thread of the large rod for lifting the transit-circle.

The toothed-wheel-apparatus upon the eastern pier is similar, except in the following respect. On both lifting-rods the screw is right-handed. If the toothed-wheel-mechanism were similar, then when the machinery on the two sides is put in connexion, as shown in Plate XIII., one end of the transit-axis would be raised and the other end would be depressed at the same time. On the eastern pier, therefore, the pinion corresponding to that shewn in this view is carried so far out as not to touch the central wheel; and a wheel is interposed, acting both in the pinion and in the central wheel, which reverses the motion of the central wheel.

η is the large brass plate (interrupted in the upper part to leave room for the lamp-chimney) screwed to plugs in the pier and carrying the eye-ends of the eleven microscopes. The solid sockets of the eyepieces, and the pieces against which the micrometer screws take the bearing that determines their zero, are in the same cast of metal.

P, the pointer microscope, is used for registering the whole number of degrees and divisions of five minutes; and for that purpose it has a lower magnifying power than the other microscopes, and has only a single fixed wire in the field of view. Its solid socket, however, is furnished with a bearing piece for a micrometer-screw, and its object-end is fitted to receive a different object-glass; which are sometimes used for examining the graduation of the circle.

A, C, E, B, D, F, are the ordinary reading-microscopes, 60° apart, each furnished with a micrometer which makes a cross of wires pass over the image of a 5′ space in somewhat less than 5 turns; the micrometer-heads are divided each into 100 parts.

a and b are sockets of microscopes, distant 20° from A and B. Their micrometers, which are in every respect similar to those of A, B, C, &c., are removed when they are not required for examining the graduation. These microscopes give the means of ascertaining the error of every 20° of graduation.

α and β are sockets of similar microscopes, distant 25° from A and B. They give the means of ascertaining the error of every 5° of graduation.

θ is the frame of the "Y" supporting the pivot of the transit-circle, partially seen in the large hole *x*.

κ is a very large and deeply curved lens, supported by two slender brass standards. In describing the reflector which illuminates the field of view of the transit-telescope, it will be shown that it is necessary that the light of the lamp q be spread to the circumference of the reflector. But if the light of q enter immediately into the perforation of the axis, it cannot, on account of the smallness of the perforation, spread so much as is necessary. The large lens causes the diverging pencil of light from the lamp q to converge into the perforation, and then to diverge so as to illuminate the whole surface of the reflector. When the 7-foot telescope is mounted, as is shown in *y*, Plate V., for looking into the axis-collimator, the lens κ is removed, the lower division of the lamp-chimney q is slid upwards, and the lamp q is turned upwards by a joint in the gas-pipe.

λ is a key, now suspended on hooks, by the application of which the spring-piece that exerts end-pressure against the axis of the transit-circle is withdrawn.

PLATE VIII. gives a View of the Inner or Eastern Face of the Western Pier.

The letters A, C, E, B, D, F, a, b, α, β, indicate the object-glasses of the micrometer-microscopes, whose eyepieces are indicated by the same letters in Plate VII. Within them, radially, are the holes (one hole corresponding to each microscope) through which the light from the lamp q falls upon the divisions of the graduated circle which are viewed by the microscopes. The screw-cut lifting-rod is shown in the large groove *w*, but the lifting-stirrup is not shown; the rods which sustain the friction-wheel-frame are partly shewn, but not the friction-wheel-frame. The rods which lift the cap of the pivot, and the cap itself, are shewn completely.

μ is the cistern of the lubricator, for keeping the pivots constantly oiled.

ν are two springs, fixed to the pier by the intermediation of a galvanic insulator, and communicating at their fixed ends with the galvanic wires which pass to the recording-barrel (in the American or chronographic system of transits). Their free ends touch the two insulated brass rings upon the axis of the instrument, from which wires are led to the contact-apparatus at the eyepiece.

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(s), (s), is the graduated circle, of cast-iron, of which the spokes and the ring are cast in two separate casts, in the same manner as those of the clamping-circle.

(t), (t), is the limb, of conical or dished form, in which are inserted two bands of silver carrying the graduations, one within the cone or on the side next the pier, the other on the outside of the cone. The band of silver within the cone carries the line-graduations to every 5′ which are viewed by the microscopes (o), (o), &c. The surface upon which they are cut is so inclined that a normal to it bisects the angle formed by the axes of the perforations (m) and (o). The light, which passes from q through (m) and falls upon the silver band, is therefore reflected by the laws of specular reflection through the microscope (o) to the eye, and thus the surface of the band is seen brilliantly illuminated, and the dark lines of the graduation are seen with remarkable distinctness. This principle of illumination appears well worthy of attention in the construction of every graduated instrument. The band of silver on the outside of the cone carries the rough graduation also to every 5′, used with the setting pointer ξ (Plate VIII.) and with π (Plates VIII. and XI.)

(u), (u), is the wheel with wooden handles, by which the instrument is turned.

(v) is a broad conical collar of iron with projecting edge fixed upon the western cone of the instrument. This projecting edge has clips which carry

(w), two narrow brass rings which are galvanically insulated by pieces of gutta-percha at the points of support. These two rings are touched respectively by the two springs ν, ν, which are fixed to insulated supports in the western pier, and thence communicate by wires with the recording apparatus proper for the American or chronographic method of transits.

(x) and (y) are wires soldered respectively to the two rings, which enter into holes in the cone of the axis, pass through the interior of the tube j, and are finally brought to the contact-apparatus on the eyepiece.

(z), (z), are the two cylindrical pivots. These pivots are in the same cast of metal as the cones to which they are attached, but they are not cast under the same circumstances. The mould for the cones was made of sand, but the mould for the pivots was made of iron, heated to a proper degree. This process (technically known by the term "chilling") gives a hardness to the surface of the cast-iron not much inferior to that of hardened-steel. The facility of combining hard metal for the pivots with soft metal for the cones, &c., in the same cast, was one of the circumstances which led me to adopt cast-iron as the metal for this instrument. The pivots were shaped and polished by grinding with emery. It is to be remarked that the flat pieces in the form of truncated flat cones, seen at the extremities of the pivots, are not portions of the pivots, but bearing-pieces, which prevent the pivots from having end-shake; that at the end of the east pivot being fixed on the "Y," and that at the end of the west pivot being pressed by spiral springs, whose support is carried by the "Y." It is also to be remaked that the interior ends of the cylindrical surfaces of the pivots terminate with a distinct shoulder; this form was adopted in order to allow the polishing tool to pass completely over the cylinder, without which the cylindrical form could not have been assured through the whole extent.

On that portion of the conical axis which is nearest to (z) will be seen the rings defining the bearing-bands, on which the counterpoise-friction-wheels and the lifting-stirrup exert their pressures.

(*a*) is the place in which a lamp is set for examination of the form of the pivots.

(*b*) is the small tube carrying the collimator-mark, which, on occasions of examining the form of the pivots, is fixed in the end of the eastern pivot (z), passing through a hole in the truncated flat cone or end-stop without touching it; and which is illuminated by the lamp (*a*). When (*a*) and (*b*) are mounted for use, κ and q are removed, and the 7-foot telescope is placed in position as shown in Plate V.

The small semi-circular hollow at the middle of the east side of the east pier was made in the stones of the pier for the mounting of an ancient instrument; and is, in reference to the transit circle, entirely accidental.

PLATE XII. is an East-and-West Vertical Section through the middle of the Piers, principally for the purpose of shewing the Lifting-Machinery.

[See the note regarding i in the descriptions of Plates III. and XV.]

(*c*), (*c*), are the large screw-cut rods which support the lifting stirrups τ, τ. On the side of each of these rods is a longitudinal furrow passing through all the threads of the screw; this furrow corresponds to a fixed pin in the foundation plate l; and in the raising of the rod the furrow slides along that pin, and prevents the rod from turning.

(*d*), (*d*), are the bevelled-wheel-nuts which are driven by the wheelwork ζ, and which work in the threads of (*c*), (*c*), and thus raise the stirrups τ, τ

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(*e*), (*e*), are the rods, two on each side, which connect the friction-wheel-frame ν with the cross-head ϵ. Each is divided in the middle of its length, and a concave screw-piece takes hold of both parts of the rod, one by a right-handed screw, and the other by a left-handed screw ; and thus the rods are conveniently adjusted in length.

(*f*), (*f*), are the solid iron-foundation-plates, strongly cemented in the pier, on which the "Y"s θ, θ, rest. The "Y"s were adjusted in position by the following process. First, (*f*) and (*f*) were adjusted as nearly as could be done by the use of a rod carrying a spirit-level. The "Y"s were planted on them, and the instrument placed in the "Y"s. The true line of collimation was found by the use of the collimators ; the wires were viewed by reflection, and the error of level was ascertained. Then the "Y"s were strapped upon the pivots, the instrument carrying its "Y"s was raised, and the surface of one of the plates (*f*) was scraped by a process well known to engineers ; then the instrument and its "Y"s were lowered, the new error of level was ascertained, and the process of scraping was repeated. When the axis was as nearly as possible horizontal, the pole-star was observed with the telescope, and its error of azimuth was ascertained ; by reference to one of the collimators, means were obtained of registering the azimuthal motion of the instrument ; and then, by the blows of a mallet upon a wooden lever, the instrument, with its "Y"s, was turned in azimuth till its position was sensibly correct. Then the screw-holes were cut in (*f*) for the screws which unite θ to (*f*), and the screws were driven tight, and in that state the "Y"s were left, and they have not since that time been moved.

The internal break of the surface of the stone to the west of *w* in the western pier is accidental. The external hollow cut in the same stone is for the reception of the lower sliding-part of the chimney of the central lamp.

PLATE XIII. gives a View on the tops of the Piers, with the machinery connected as for raising the Transit-Circle, and with the stages opened so as to admit of the raising.

No explanation of special parts is required for this plate. It will be seen that those portions of the upper platforms, which are next to the centre of the opening between the piers, are turned back upon their hinges towards the piers ; and that portions of several steps on each side (north and south), both of the east and west stages, are removed ; and thus a clear space is left for raising the clamping-circle on one side, and the graduated circle and hand-turning-circle on the other side, through a height sufficient for allowing the south-collimator to view the north collimator, and *vice versâ*, (see Plate VI.)

The crank-rod *r* is shown as connecting the wheelwork on the two piers.

PLATE XIV. contains details of the construction of the Transit Circle.

Figure (1) is a section of the transit-telescope and its conical axes. The letters have the same signification as in the preceding descriptions. Corresponding to (x) and (y) are seen the two galvanic wires which are soldered to the two rings (w), and pass thence through the interior of the instrument to the touch-piece on the eye-end, which will be shewn hereafter. The strengthening-ribs in the interior of the central cube *i*, are shewn here only so far as they are cut by this section ; they will be shewn more completely hereafter.

1, 1, are the strengthening rings in the same cast of metal as the object-end of the telescope. 2, 2, those in the same cast as the eye-end. 3, 3, &c., those in the same cast as the two halves of the axis. 4, 4, 4, 4, the diagonal braces of the central cube. 5, 5, the annular reflector, in the position in which it reflects the light of the lamp q, (after it has passed through the large lens κ, Plates XI. and XII., and has entered through the lenses 15,) and throws the light down the eye-tube to illuminate fully the field of view ; two of the prisms carried by the annular reflector are shewn at 5 and 5, but the prisms in the axis of the reflector, and the stop-arc, are omitted. 6, 6, the annular reflector, in the position in which it reflects no light to the field of view. At 6, 6, are two prisms ; and at 7 are two prisms in the axis of the reflector (one above this section and one below it) which, in this position only of the annular reflector, reflect definite beams of light in a definite direction down the eye-tube. 8, the stop-arc which defines the position of the annular reflector for this prism-reflection. 9, 9, &c., holes in 4, 2, 2, &c., through which the light from the prisms passes to the eye-end. 10, 10, prisms at the eye-end which reflect the light coming from the prisms 6, 6, obliquely upon the wires of the field of view. 11, a rod jointed to the annular reflector, and passing through the large flat piece or breech-piece at the end of the iron eye-tube, where it is within reach of the observer's hand.

The graduation of light in the field of view is therefore effected in the following manner. When the annular reflector is in the position 5, 5, it is in the position most favourable for reflection, and the field of view is then most brilliantly illuminated. By pushing the rod 11, the reflector is brought into a state less favourable for reflection, and the illumination of the field is diminished. On

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holes or slits, permitting the clamp to be slid so far as to be entirely disengaged from the clamping-circle when the instrument is to be raised; 2 is the bevelled-wheel, carried by the spindle to which the rod is attached by hook's-joint; this spindle has square ends below and above, admitting of the application of the hook's-joint to either place; 3 is the vertical-bevelled-wheel in which 2 works, and which is connected with the clamp-screw; 4 is the biting lip of the clamp, which is drawn by the screw of 3; 5, is the limb of the clamping-circle. It will be seen that here is no provision whatever for slow motion; and this was omitted by design; as it appeared very improbable that a slow-motion-screw could act successfully on a mass of matter so great as that of this transit-circle. When an object is observed in declination, the telescope is placed as nearly as possible in the proper direction, and the clamp is pinched tight; then the observation is completed by means of the declination-micrometer in the field of view of the telescope.

Figure (23) is a side view of one of the original collimators, intended to show the method of illuminating the wires when they were to be viewed by the other collimator or by the transit-telescope. The limited length of the room did not permit the illuminating light to be placed in the axis of the telescope, and the arrangement represented here was made for directing the light by means of a reflector. 1 is the place of the gaslight on the further side of the pier; 2 is a cylinder fitting on the eyepiece socket (the eyepiece being removed), and carrying two slender rods or standards; 3 is a parallelogram-frame, turning on pins in the standards of 2; 4 is a rod soldered to 3, by means of which 3 may be inclined or tilted; 5 is a mirror which turns on pins in the frame 3 at right angles to the former pins; 6 is a rod soldered to the back of the mirror, by which the mirror can be inclined or tilted in the frame 3. The mirror thus moves in jimbals. 7, 7, are two long wires, which are led from the ends of 4 and 6 nearly to the object-glass. The observer therefore stations himself at the object-glass and pulls or pushes the two long wires until he finds that the light of the lamp is distributed over the whole surface of the object-glass; it is then in a state fit for distinct vision of the wires.

The collimator in use was covered by a wooden box, of which a small part only is opened to expose the object-glass, and a part to expose the eyepiece. Plates of tinned iron were placed near the eye end, to protect the eye end and its support from the heat of the lamp.

[With the new collimators, this apparatus is not employed. The eyepieces are so close to the wall-shutters that the light of the sky can be conveniently reflected to them from external porcelain reflectors through holes in the shutters. Lamps are provided for direct illumination from the outside; but hitherto they have not been used.]

Figure (24) is a view of the eye-end of the south collimator, showing the rack-and-pinion-slider for the eyepiece, and the head of the micrometer which slides the wires of the south collimator right and left. The micrometer head, when not in use, is inclosed in a glass box. The eye-end of the north collimator is nearly similar; the eyepiece slides up and down in the same way, but the micrometer-head is at the lower side, so as to give an up-and-down movement to its system of wires. [With the new collimators the functions of the north and south collimators are reversed, and the corresponding change is to be made in this description.]

Figure (25) is a view of the object-end of the collimator; it requires no particular explanation.

PLATE XVI. contains details of the Wire-Plates of the Telescope and Collimators, the Nadir-Eyepiece, and the Circles.

Figure (26) shows the prism-plate of the transit-telescope as seen from the eye-end. The prisms to the right and left illuminate the vertical wires, and those above and below illuminate the horizontal wire. It is remarkable that the right and left prisms do not throw the slightest sensible illumination on the horizontal wire, and the prisms above and below do not in any degree illuminate the vertical wires.

[For understanding the principle of the apparatus by which the brilliancy of illumination of the wires is adjusted, it is to be remarked that the object desired was, to alter the effective breadth of each of the prisms, without altering its effective length. A moveable brass plate is therefore provided, nearly as large as the prism-plate, and sliding upon that side of the prism-plate which is next the object-glass. It is made to slide (by an external screw of high pitch), in a direction which makes an angle of 45° with the position of the prisms. It has a central hole, elongated in the direction of sliding; and it has four rectangular holes corresponding to the prisms; the breadth of the holes being the same as the breadth of the prisms, but the length of the holes being greater than the length of the prisms. When the plate is in the position furthest from the external screw-head, its holes correspond in breadth with the prisms, and overshoot them in length in the directions furthest from the screw-head. The illumination then is maximum. On turning the screw, the breadth of the prisms is gradually cut off (the outside edges of the distant prisms and the inside edges of the near prisms being hidden), but no part of the length is cut off; till finally the prisms are

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completely covered and there is no illumination; in this state the holes overshoot the prisms in length in the directions nearest to the screw-head.]

Figure (27) shows the micrometers of the transit-telescope, as seen from the object-end. The two micrometers are perfectly independent. The transit-micrometer carries the whole system of transit-wires.

Figure (28) is the system of wires in the south collimator, as seen in its own eyepiece.

The dotted line represents the horizontal line. It will be remarked that the nearly-horizontal wires are not absolutely horizontal, but inclined about 3° to the horizon, and that the nearly-vertical wires are inclined about 3° to the vertical. It will also be remarked that one of the nearly-vertical wires is strong and the other is fine, and that the two upper nearly-horizontal wires are strong and the lower one is fine. The reasons for these constructions will be understood on inspection of the combinations.

Figure (29) represents the system of wires in the north collimator as viewed in the eyepiece of the south collimator, or as viewed in the eye-piece of the transit-telescope.

Figure (30) represents the combination of the two systems of wires, when the transit-circle is raised, and the wires of both collimators are seen in the eyepiece of the south collimator. The wires are here shown in the position corresponding to exact adjustment of the collimators. The two strong upper wires (nearly horizontal) of the south collimator serve only to define a small portion of the nearly-vertical fine wire of the south collimator, whose middle point is to be used in horizontal measures and horizontal adjustments. In like manner, the two strong upper wires of the north collimator define the small portion of the nearly-vertical fine wire of the north collimator whose middle point is to be used. Therefore, when horizontal adjustments of the two collimators are to be made, care must be taken that, by the vertical screw of the north [now of the south] collimator, the intersection of the nearly-vertical fine wire of the north [now south] collimator with each of its upper wires, be brought as nearly as possible to the same height as the similar intersections in the south [now north] collimator; and then the adjustment in the horizontal direction of the defined points of the nearly-vertical fine wires, can be effected very delicately by the horizontal screw of the south [now of the north] collimator.

The nearly-vertical strong wire of each collimator is used, in conjunction with its parallel fine wire, only to define that small part of the lower nearly-horizontal fine wire, whose middle point is to be used for vertical reference. Therefore, when vertical adjustment is required, the horizontal screw of the south [now of the north] collimator must first be used (if necessary) to bring the intersections of the fine nearly-horizontal wire with the two nearly vertical wires, in one collimator, to the same vertical as those of the other collimator; and then the vertical adjustment is effected by the vertical screw of the north [now of the south] collimator.

Figure (31) shows the appearance of the wires of the north collimator as viewed with the transit-telescope; the vertical and horizontal wires of the transit-telescope being adjusted upon the nearly-vertical and nearly-horizontal wires of the north collimator, and the points of reference of the collimator wires being the same as those spoken of in describing figure (30). The distance of the nearly-horizontal fine wire in the collimator from the strong wires is determined so that the referring point of the nearly-vertical fine wire and the referring point of the nearly-horizontal fine wire shall be in the same vertical.

Figure (32) is a section of the nadir-eyepiece. The reflector is of plane glass. Its inclination can be altered by a milled head on the outside of the tube, which is furnished with a clamp. Additional plane glasses can be placed in the ring of the reflector, if thought necessary.

Figure (33) is a plan and section of the clamping circle.

Figure (34) is a plan and section of the graduated circle.

Figure (35) is a plan and section of the circle for turning the instrument by hand.

Although reference has been occasionally made to the materials of which the different parts are composed, it may be proper to state that:

The "Y"s are made of cast iron, the surfaces on which the pivots rest being chilled.

The halves of the axis (each half including in one cast the half-cube, the cone, and the pivot) are of cast iron, the surfaces of the pivots being chilled.

The two large tubes of the telescope (object-tube and eye-tube) are of cast-iron.

The object-glass-cell is of brass.

The eyepiece-tube, &c., including the large flat plate or breech-piece on the iron eye tube, is of brass.

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Circle Reading.	Vertical Micrometer Reading in first set.	Horizontal Micrometer Reading in second set.	Circle Reading.	Vertical Micrometer Reading in first set.	Horizontal Micrometer Reading in second set.
° ′	r	r	° ′	r	r
2.30	13.54·33	8.58·73	182.30	16. 9·87	8.20·53
7.30	53·60	52·47	187.30	11·73	25·67
12.30	53·30	46·33	192.30	12·77	31·87
17.30	52·13	40·37	197.30	12·77	37·97
22.30	52·30	34·30	202.30	12·67	44·57
27.30	52·90	27·97	207.30	12·23	50·87
32.30	53·77	21·77	212.30	11·20	8.56·10
37.30	55·17	15·37	217.30	9·60	9. 1·97
42.30	13.58·23	9·80	222.30	6·33	7·20
47.30	14. 1·07	8. 4·67	227.30	4·37	13·50
52.30	5·07	7.59·50	232.30	16. 0·97	18·83
57.30	8·83	53·90	237.30	15.57·80	24·73
62.30	12·47	48·67	242.30	53·70	29·40
67.30	17·47	44·83	247.30	49·00	33·90
72.30	21·90	41·53	252.30	44·87	36·93
77.30	27·77	38·47	257.30	39·27	40·67
82.30	32·97	35·17	262.30	35·00	43·50
87.30	38·40	33·17	267.30	29·33	45·73
92.30	44·87	32·13	272.30	22·80	47·73
97.30	50·60	30·50	277.30	16·97	48·93
102.30	14.56·47	30·10	282.30	10·53	50·17
107.30	15. 2·27	29·97	287.30	15. 4·50	51·27
112.30	8·60	30·77	292.30	14.58·23	50·90
117.30	14·77	31·23	297.30	51·80	49·70
122.30	21·17	32·50	302.30	45·77	48·60
127.30	27·17	34·53	307.30	40·17	46·43
132.30	33·13	36·47	312.30	34·17	44·20
137.30	38·13	38·63	317.30	28·70	41·10
142.30	43·27	41·73	322.30	23·43	37·93
147.30	48·03	45·17	327.30	19·33	34·57
152.30	52·20	49·37	332.30	13·90	30·97
157.30	15.56·80	53·17	337.30	9·87	26·13
162.30	16. 0·33	7·58·03	342.30	6·33	21·27
167.30	3·47	8. 3·87	347.30	14. 3·00	16·03
172.30	6·00	7·63	352.30	13.59·40	10·33
177.30	8·20	13·53	357·30	57·63	4·43

Grouping the numbers in each column by quadrants, and remarking that, if they were produced by excentricity of the point only, their formulæ would be—

Vertical measure = constant (1) + b cos. circle reading—c sin. circle reading.

Horizontal measure = constant (2) + b sin. circle reading + c cos. circle reading.

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we find from the vertical measures,—

Constant (1) = 15r. 3·15
b = — 1. 6·97
c = + 22·09

and from the horizontal measures—

Constant (2) = 8.39·60
b = — 1. 7·14
c = + 21·91

Adopting $b = -1^r.7·06$, $c = +22·00$, computing the values of the two formulæ above for every observed circle-reading, and subtracting them from the numbers found by observation, we obtain the following residual quantities, which depend only on errors of the form of pivots, and on errors of observation.

RESIDUAL ERRORS.

Circle Reading.	Vertical Error.	Horizontal Error.	Circle Reading.	Vertical Error.	Horizontal Error.	Circle Reading.	Vertical Error.	Horizontal Error.	Circle Reading.	Vertical Error.	Horizontal Error.
° ′			° ′			° ′			° ′		
2.30	−0·87	+0·07	92.30	+0·78	+0·48	182.30	−1·23	−0·01	272.30	+0·59	+0·18
7.30	−0·21	−0·19	97.30	+0·51	+0·24	187.30	−0·76	−0·87	277.30	+0·76	−0·01
12.30	+0·38	−0·24	102.30	+0·29	+0·73	192.30	−0·61	−0·76	282.30	+0·41	+0·34
17.30	−0·44	−0·05	107.30	−0·06	+0·95	197.30	−0·96	−0·81	287.30	+0·53	+1·09
22.30	−0·47	+0·03	112.30	+0·12	+1·55	202.30	−0·86	−0·36	292.30	+0·41	+0·92
27.30	−0·61	−0·18	117.30	+0·17	+1·27	207.30	−0·56	−0·18	297.30	+0·10	+0·46
32.30	−1·00	−0·36	122.30	+0·55	+1·28	212.30	−0·33	−0·97	302.30	+0·09	+0·62
37.30	−1·37	−0·86	127.30	+0·65	+1·54	217.30	−0·16	−1·00	307.30	+0·39	+0·22
42.30	−0·62	−0·71	132.30	+0·89	+1·17	222.30	−1·12	−1·49	312.30	+0·11	+0·30
47.30	−0·55	−0·35	137.30	+0·40	+0·56	227.30	−0·31	−0·68	317.30	+0·13	−0·03
52.30	+0·21	−0·29	142.30	+0·31	+0·42	232.30	−0·47	−0·58	322.30	+0·09	+0·04
57.30	+0·27	−0·96	147.30	+0·14	+0·16	237.30	+0·06	+0·39	327.30	+0·92	+0·38
62.30	−0·21	−1·61	152.30	−0·27	+0·24	242.30	+0·08	+0·48	332.30	+0·07	+0·90
67.30	+0·31	−1·23	157.30	+0·11	−0·44	247.30	−0·14	+0·76	337.30	+0·26	+0·54
72.30	−0·09	−0·73	162.30	−0·16	−0·41	252.30	+0·56	−0·01	342.30	+0·52	+0·51
77.30	+0·61	−0·42	167.30	−0·39	+0·26	257.30	+0·13	+0·36	347.30	+0·56	+0·44
82.30	+0·38	−0·81	172.30	−0·77	−1·41	262.30	+1·29	+0·28	352.30	−0·13	+0·17
87.30	+0·15	−0·40	177.30	−0·98	−1·17	267.30	+1·28	+0·10	357.30	+0·51	−0·07

The value of the micrometer-scale was found by a process similar to that to be described shortly as applied to the collimators. It appeared that the unit in the expressions for the errors above $= 0''·527$.

Although the small residual numbers appear in some parts to follow a sort of law, I believe it to be quite accidental. It is not supported by observations made in 1851, February 7th, and subsequent times. The values for horizontal and vertical displacement cannot be explained on the known positions of the bearings on the Y's, by any determinate projections from the pivots. They are most likely due to some small error of the micrometer. The excentricity of the point relatively to the collimator lens required a greater range of the micrometer than was quite desirable. In the reduction of all celestial observations, I have considered the forms of the pivots as perfect. The pivots have been examined, with very similar results, in 1856, 1860, 1864, and 1867.

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The final result for errors of division for every degree is as follows; ($1^r = 61''{\cdot}4$ nearly.):

Degree.	Excess of Reading.	Degree.	Excess of Reading.	Degree.	Excess of Reading.	Degree.	Excess of Reading.	Degree.	Excess of Reading.	Degree.	Excess of Reading.	Degree.	Excess of Reading.	Degree.	Excess of Reading.
°	r	°	r	°	r	°	r	°	r	°	r	°	r	°	r
0	0·054	45	0·057	90	0·076	135	0·085	180	0·050	225	0·029	270	0·073	315	0·070
1	·053	46	·062	91	·078	136	·087	181	·046	226	·033	271	·071	316	·071
2	·050	47	·066	92	·081	137	·095	182	·043	227	·039	272	·061	317	·075
3	·053	48	·073	93	·073	138	·089	183	·045	228	·041	273	·059	318	·077
4	·052	49	·069	94	·078	139	·082	184	·047	229	·050	274	·058	319	·071
5	·053	50	·061	95	·073	140	·081	185	·042	230	·053	275	·063	320	·078
6	·053	51	·058	96	·072	141	·084	186	·037	231	·054	276	·063	321	·074
7	·051	52	·064	97	·071	142	·083	187	·043	232	·058	277	·067	322	·069
8	·054	53	·086	98	·070	143	·091	188	·045	233	·062	278	·072	323	·079
9	·050	54	·071	99	·075	144	·086	189	·038	234	·058	279	·072	324	·075
10	·052	55	·076	100	·075	145	·080	190	·028	235	·052	280	·066	325	·075
11	·061	56	·075	101	·067	146	·073	191	·019	236	·040	281	·068	326	·073
12	·061	57	·077	102	·073	147	·078	192	·026	237	·043	282	·069	327	·065
13	·057	58	·080	103	·069	148	·078	193	·034	238	·052	283	·070	328	·063
14	·065	59	·079	104	·065	149	·072	194	·032	239	·061	284	·065	329	·067
15	·058	60	·074	105	·064	150	·073	195	·036	240	·064	285	·059	330	·063
16	·060	61	·072	106	·066	151	·068	196	·038	241	·072	286	·061	331	·057
17	·055	62	·065	107	·061	152	·073	197	·036	242	·069	287	·055	332	·068
18	·062	63	·064	108	·059	153	·081	198	·039	243	·073	288	·057	333	·072
19	·062	64	·074	109	·067	154	·081	199	·044	244	·064	289	·057	334	·074
20	·064	65	·067	110	·065	155	·087	200	·038	245	·062	290	·055	335	·075
21	·052	66	·063	111	·064	156	·088	201	·046	246	·052	291	·056	336	·076
22	·052	67	·060	112	·067	157	·075	202	·044	247	·045	292	·069	337	·070
23	·051	68	·062	113	·068	158	·069	203	·040	248	·038	293	·065	338	·067
24	·055	69	·068	114	·073	159	·070	204	·040	249	·043	294	·072	339	·066
25	·053	70	·065	115	·072	160	·072	205	·043	250	·046	295	·076	340	·067
26	·062	71	·060	116	·078	161	·067	206	·041	251	·045	296	·072	341	·069
27	·057	72	·054	117	·078	162	·061	207	·045	252	·046	297	·070	342	·076
28	·057	73	·047	118	·071	163	·059	208	·045	253	·050	298	·063	343	·073
29	·060	74	·045	119	·077	164	·060	209	·045	254	·054	299	·065	344	·069
30	·062	75	·058	120	·079	165	·067	210	·052	255	·061	300	·082	345	·070
31	·069	76	·056	121	·084	166	·065	211	·052	256	·066	301	·079	346	·067
32	·065	77	·055	122	·087	167	·062	212	·042	257	·069	302	·074	347	·068
33	·067	78	·056	123	·095	168	·056	213	·042	258	·065	303	·078	348	·068
34	·064	79	·061	124	·100	169	·057	214	·037	259	·058	304	·083	349	·061
35	·061	80	·065	125	·088	170	·052	215	·031	260	·065	305	·079	350	·053
36	·055	81	·072	126	·093	171	·055	216	·039	261	·074	306	·080	351	·050
37	·054	82	·076	127	·090	172	·053	217	·034	262	·073	307	·080	352	·044
38	·055	83	·077	128	·087	173	·049	218	·040	263	·074	308	·077	353	·049
39	·066	84	·077	129	·082	174	·046	219	·031	264	·076	309	·074	354	·047
40	·065	85	·077	130	·079	175	·041	220	·035	265	·078	310	·070	355	·041
41	·068	86	·075	131	·087	176	·044	221	·034	266	·079	311	·077	356	·046
42	·072	87	·083	132	·070	177	·057	222	·031	267	·086	312	·073	357	·050
43	·070	88	·074	133	·076	178	·053	223	·035	268	·083	313	·074	358	·053
44	·062	89	·076	134	·080	179	·051	224	·036	269	·075	314	·075	359	·054

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5th. Apparatus for finding the error of every 5′. The micrometer of the last-mentioned microscope is furnished with two sets of wire crosses, at an interval of 5′ nearly. It was intended to use these, by a small motion of the micrometer, for the measure of every space of 5′; and, after every 12 measures, the divisions in the series of 1° would be brought under the microscope, and the errors of the intermediate divisions would be ascertained by proper formulæ. But after examination of the generally regular progress of the trifling errors in the 1° series; and after consideration of the great security which is given for the regular progress of the errors of intermediate divisions by a well-made dividing-engine, I judged this operation to be unnecessary. [This operation has, subsequently, been performed for several of the divisions most frequently used.]

A complete redetermination of the divisions' errors was made in 1856–57.

(IV.) To determine the values of the graduations of the micrometers, and the intervals of wires in the telescope-eyepiece.

For the declination-micrometer, one circle-reading was taken by directing the telescope to one collimator, and observing its nearly-horizontal wire with a small reading of the declination-micrometer, and another by observing the same wire with a large reading of the declination-micrometer; the microscope-micrometers being read and corrected for runs, &c. The result ought to be the same in the two cases when the proper value is given to the revolutions of the micrometer. This consideration gives a simple equation for the value of 1^r. A series of experiments, including 270 revolutions of the micrometer, gave $1^r. = 29'{\cdot}626$.

[The very near approach of this value to the half-value of one revolution of the micrometers of the circle-microscopes sometimes produced inconvenience, in cases where mistake of reading had been made, and where it was difficult to decide which micrometer had been erroneously read. A new micrometer has now been mounted, the value of whose revolution is $34''{\cdot}526$.]

For the transit-micrometer, the eyepiece sliding-tube of the telescope was turned 90° in its fixed tube, and the same process was employed. The result of the experiment on 420 revolutions was $1^r = 14''{\cdot}781$.

For the intervals of transit-wires, the eyepiece-sliding tube being in the same position, each wire was brought upon the image of the nearly horizontal wire of a collimator, partly by movement of the instrument and partly by movement of the transit micrometer-screw. The microscope-micrometers were read. The combination of values of the microscope-micrometers and of the telescope-micrometers being made, a series of numbers is obtained for the different wires, whose differences give the intervals of the wires. [In later years, however, the intervals have usually been determined from transits of stars.]

(V.) To determine the values of the collimator-micrometers, and the micrometer of the 7-feet telescope.

The south collimator was turned 90°, so that the range of its micrometer, as well as that of the north collimator, was up and down. The 7-feet telescope, when it was the subject of experiment, was placed in the same position in the forks of one of the collimators. The wire of each was placed in different positions, and the reading of its image was taken as viewed by the transit-telescope and read off by the microscope-micrometers and the telescope-micrometer. The results, from about 200 revolutions in each case, were; south collimator, $1^r = 32''{\cdot}29$; north collimator, $1^r = 31''{\cdot}45$; 7-feet telescope, $1^r = 31''{\cdot}62$. [The results for the new collimators, are; south collimator, $1^r = 24''{\cdot}17$; north collimator, $1^r = 24''{\cdot}24$.]

(VI.) To determine the astronomical flexure of the transit-telescope.

On December 30, 1850, the instrument was raised, and the south collimator was viewed by the north collimator. The nearly-horizontal wire of the north collimator was brought by its micrometer screw upon that of the south collimator 20 times, and the reading was taken each time. The mean of the readings was $0^r{\cdot}570$. The micrometer was set to this reading, the instrument was lowered, and the two collimator-wires were observed by the transit-circle. The reading for the south collimator was found to be 89° 46′ 15″·52; that for the north collimator 269° 46′ 16″·35. Half the difference of the seconds, or 0″·41, is the effect of flexure in diminishing apparent zenith distances near the horizon. The results of similar operations were, on 1851, February 5, +0″·88; on 1852, December 23, +0″·20; 1857, January 5, +0″·46; 1857, January 21, +0″·66; 1860, September 1, +0″·67; 1864, September 7, +0″·76. [Since the perforation of the plates i, the values found are, on 1867, April 25, −0″·34; on 1867, May 8, −0″·31; and on 1867, May 13, −0″·37.]

(VII.) To determine the line of collimation, in reference to transit observations.

As this operation is repeated every day, it will suffice to take any day as an example. On February 7, 1853, the instrument was raised, the north collimator was viewed by the south collimator, the nearly-vertical wire of one was placed on the image of

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the other by means of the horizontal micrometer-screw of the south collimator, and the reading of the micrometer was registered. This was repeated six times; the mean of the readings was taken, and found $=0^r\cdot630$, and the microscope was set to the reading $0^r\cdot630$. Then the instrument was lowered, and the two nearly-vertical wires were observed with it, the wire-frame of the transit-telescope being moved by the transit-micrometer till the middle vertical wire coincided successively with the image of the nearly-vertical wire of each collimator. These measures were repeated six times for each collimator, the transit micrometer being read each time, and the means of the readings being taken. The means were—

Reading for south collimator - - -	$31^r\cdot300$
Reading for north collimator - -	$31\cdot521$

The mean of these, or $31^r\cdot411$, is the reading for the line of collimation; and when the transit-micrometer is set to this reading, it may be considered that the line from the focal centre of the object-glass to the middle transit-wire is sensibly at right angles to the axis of the instrument.

(VIII.) To determine the inclination of the axis of the transit-telescope to the plane of the horizon.

As in the last instance, an example will suffice. On Nov. 10, 1852, the nadir-eyepiece was mounted, and the wires were observed by reflexion in quicksilver. By the transit-micrometer, the middle wire and its image formed by reflexion were brought into contact six times successively on the right and left sides, the micrometer was read, and the mean was taken. The mean was $31^r\cdot531$. The reading for the line of collimation had been found $31^r\cdot358$. The difference, $0^r\cdot173$ or $2''\cdot55$, is the inclination of the axis. On considering the position of the micrometer-screw and the direction in which the wires are moved when the reading of the micrometer increases, it appeared that, when the reading for coincidence of direct and reflected images is greater than that for the line of collimation, the east end of the axis is higher than the west end, and the correction to observed transits will be negative. The error, therefore, in this instance is $-2''\cdot55$.

(IX.) To determine the azimuthal error of the transit-telescope.

For this purpose, reference is made in the first instance to observations of circumpolar stars, as for the former transit-instrument. Advantage is taken, however, of the presumed stability of the north collimator, in this manner. Every satisfactory determination of azimuth (and none but those founded on upper and lower consecutive passages of a circumpolar star are admitted for this purpose) gives a determination of azimuth of the north collimator. The mean of several such results gives a very accurate determination of that azimuth (supposed constant), and then every observation of the north collimator gives a new determination of the azimuth of the transit-telescope, applicable to the time of that observation. [In later years, the azimuthal error has been determined exclusively by double transit of a circumpolar star, or by single transit of a circumpolar star combined with transit of a clock star.]

(X.) To determine the zenith-point, or circle-reading corresponding to the zenithal position of the telescope.

This is done, either by observing the declination wire by reflection, by means of the nadir eyepiece (an operation which is repeated every day), or by observing stars by reflexion (for which purpose, when the weather permits, a north star and a south star are observed every evening). The two processes are in no respect different from those which have been employed with the mural circle and other instruments.

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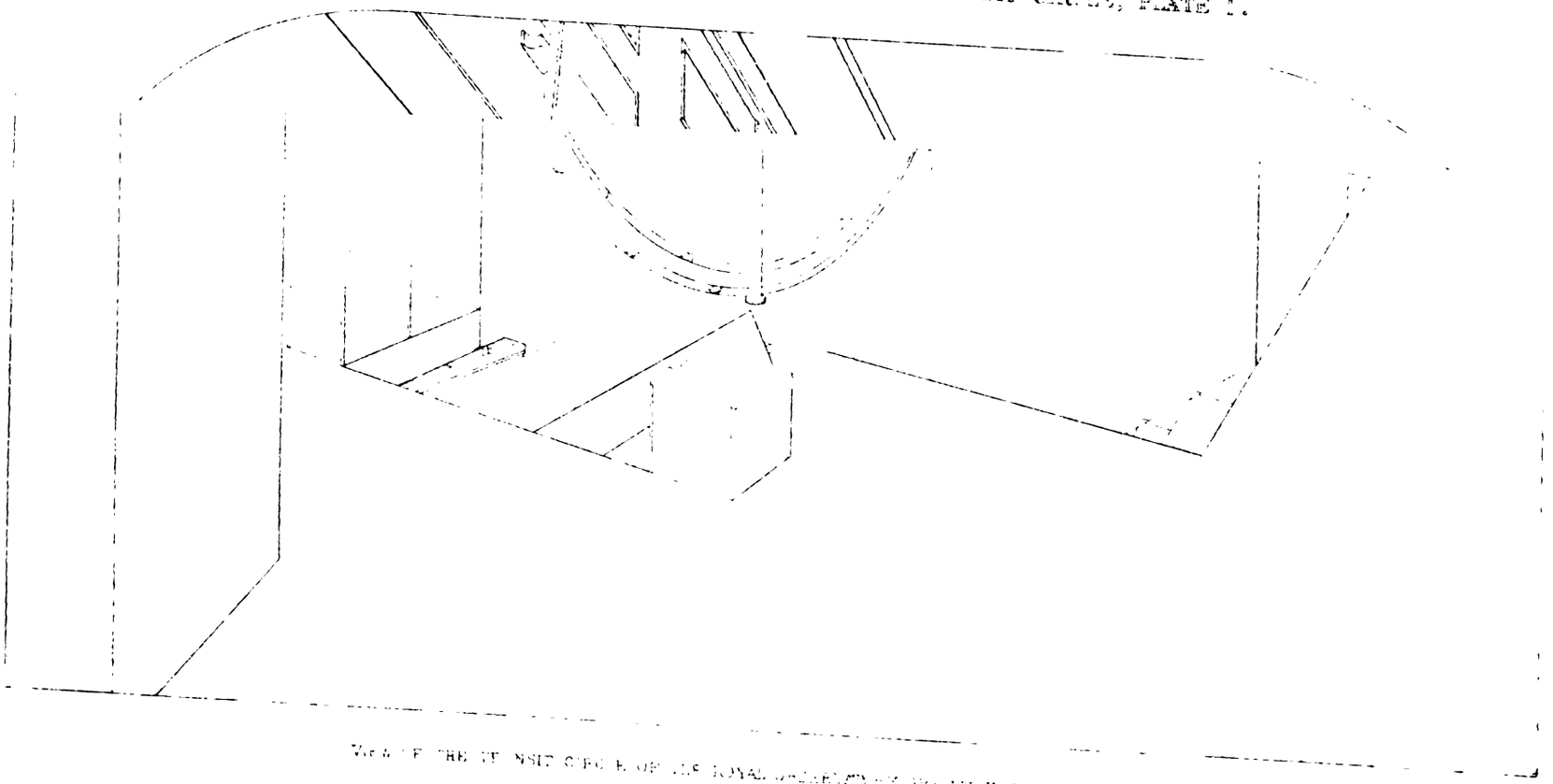
GREENWICH OBSERVATIONS 1852. DESCRIPTION OF TRANSIT-CIRCLE, PLATE I.



VIEW OF THE TRANSIT CIRCLE OF THE ROYAL OBSERVATORY, GREENWICH, FROM THE NORTH WEST

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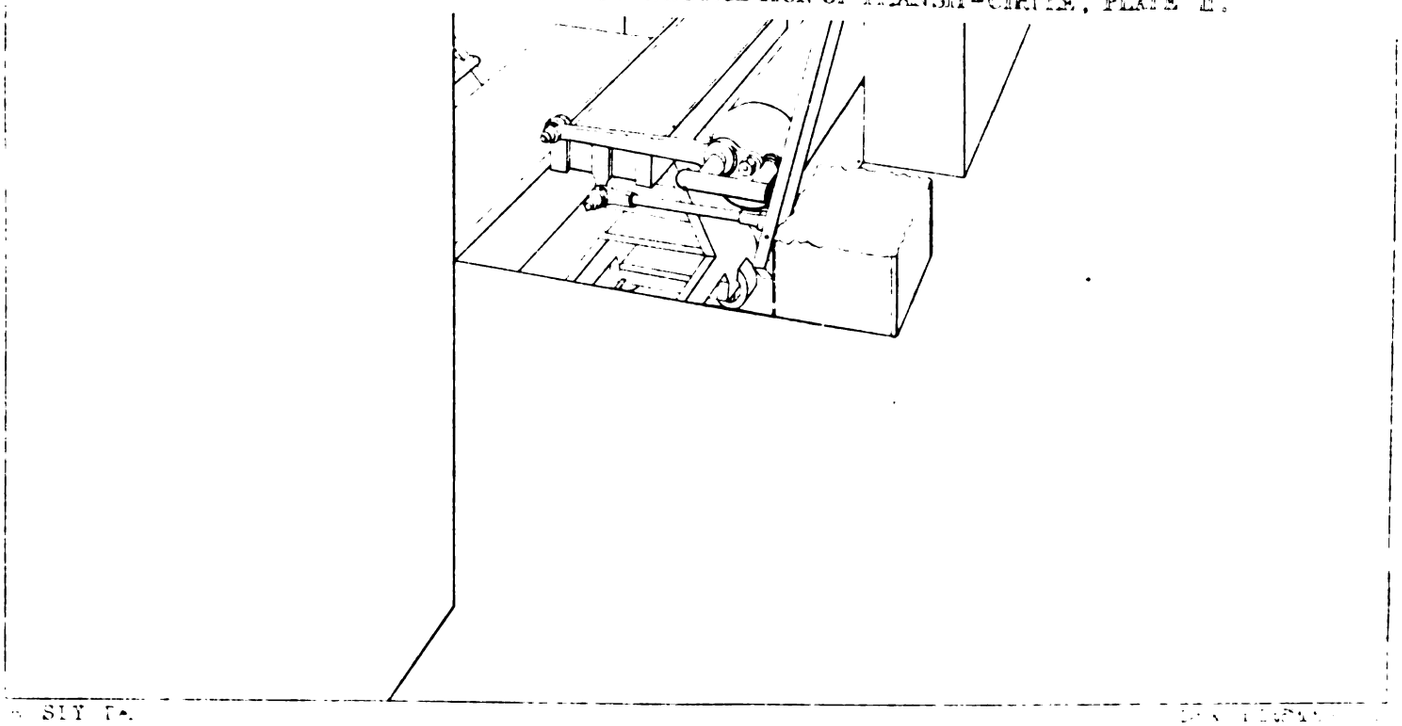

VIEW OF THE TRANSIT-CIRCLE AT THE ROYAL OBSERVATORY, GREENWICH FROM THE SOUTH EAST

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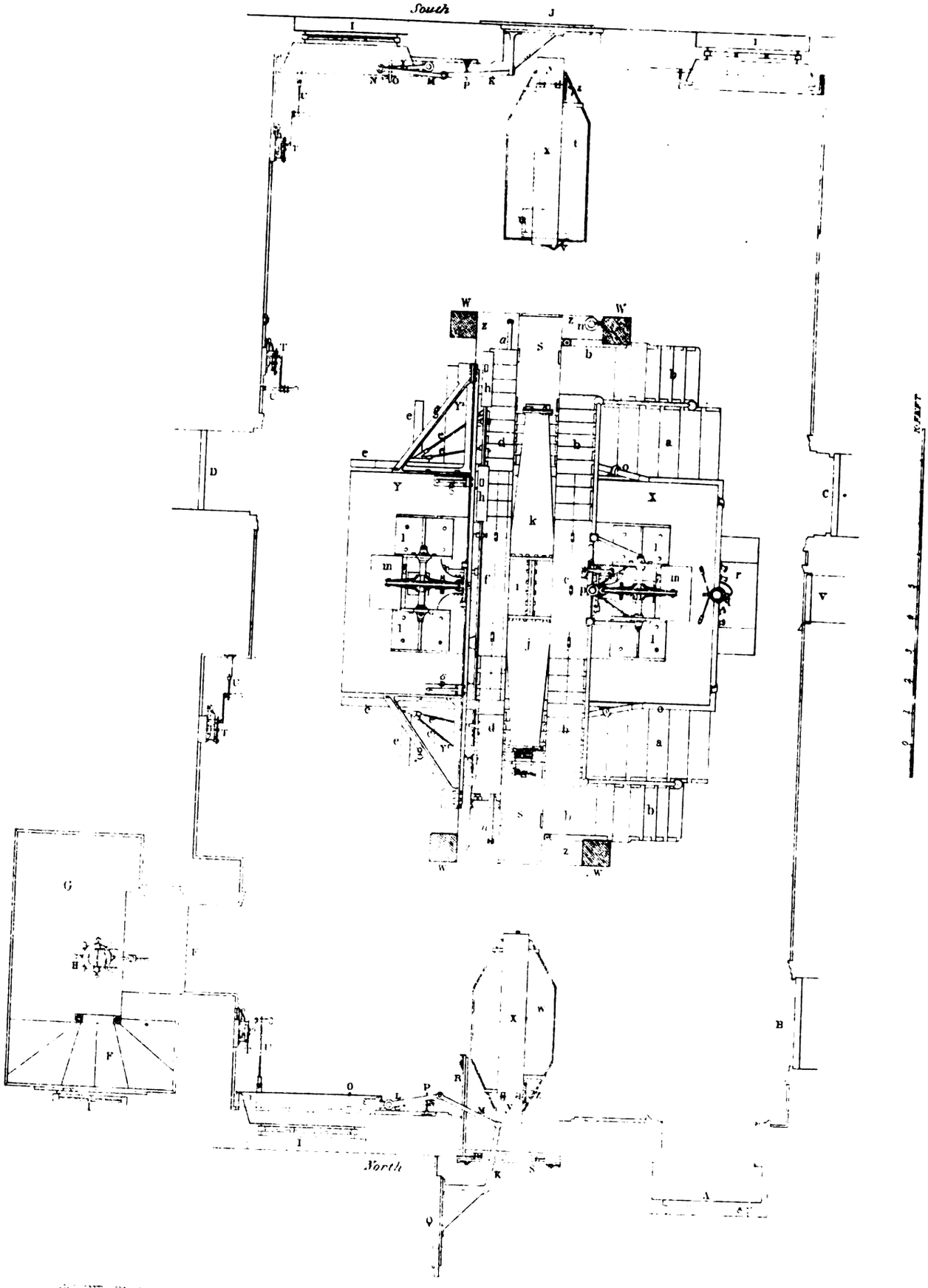

GROUND-PLAN OF TRANSIT CIRCLE ROOM OF THE ROYAL OBSERVATORY GREENWICH AND VIEW OF TRANSIT CIRCLE [illegible]

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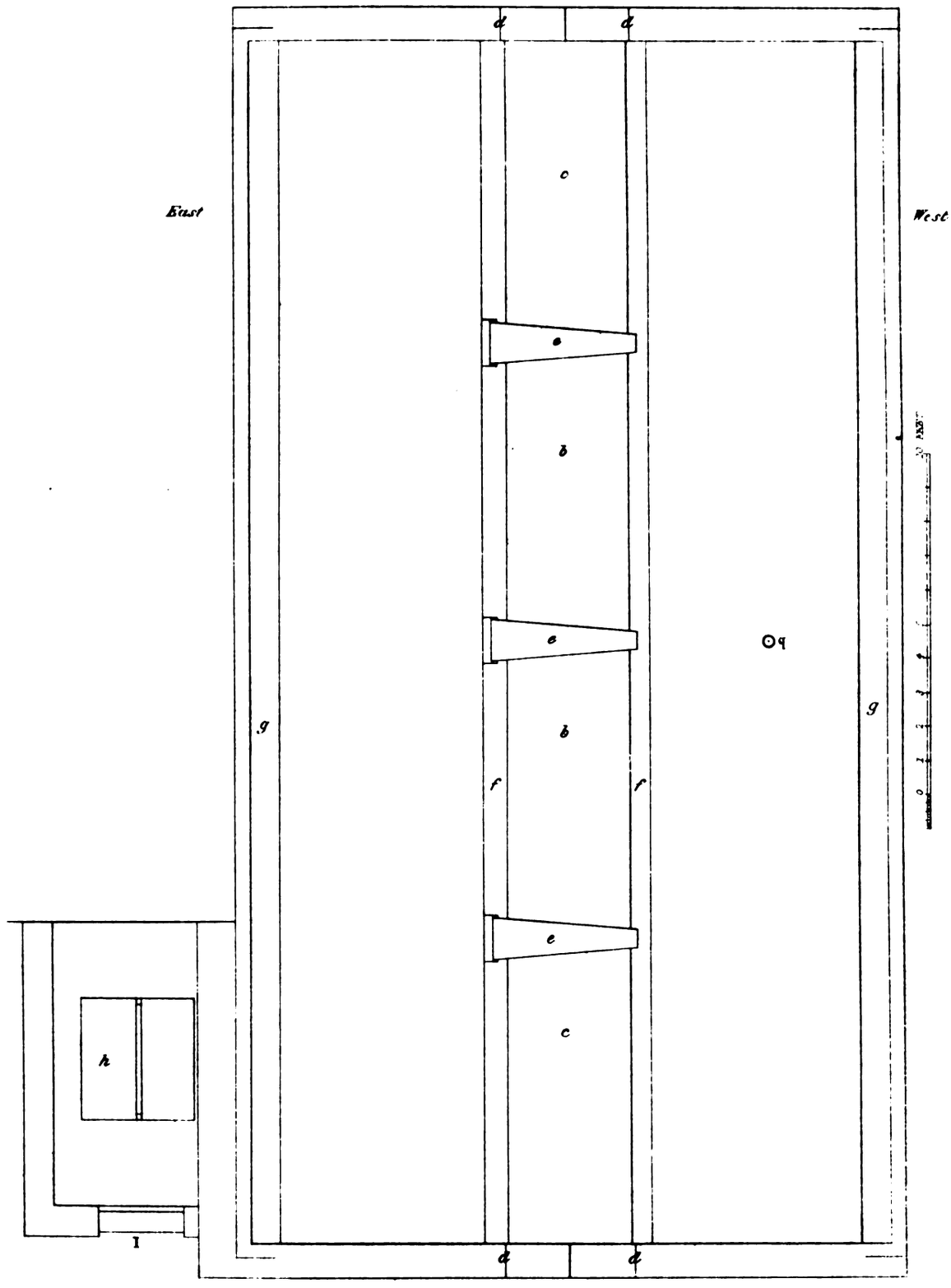

PLAN OF ROOF OF TRANSIT-CIRCLE-ROOM &c. AT THE ROYAL OBSERVATORY GREENWICH

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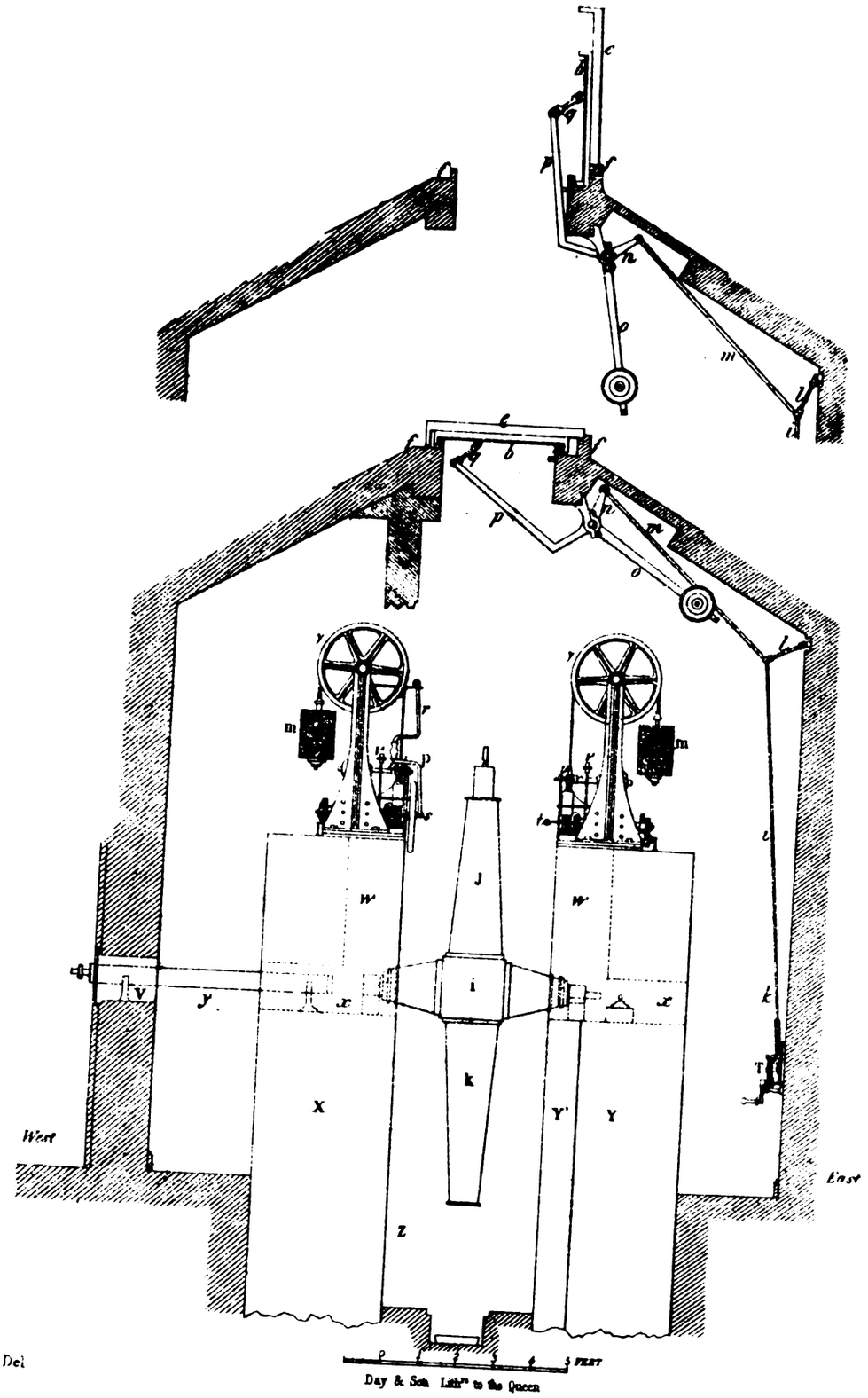

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Day & Son Lith^rs to the Queen

TRANSVERSAL SECTION OF TRANSIT-CIRCLE ROOM OF THE ROYAL OBSERVATORY GREENWICH WITH A PART OF THE INSTRUMENT

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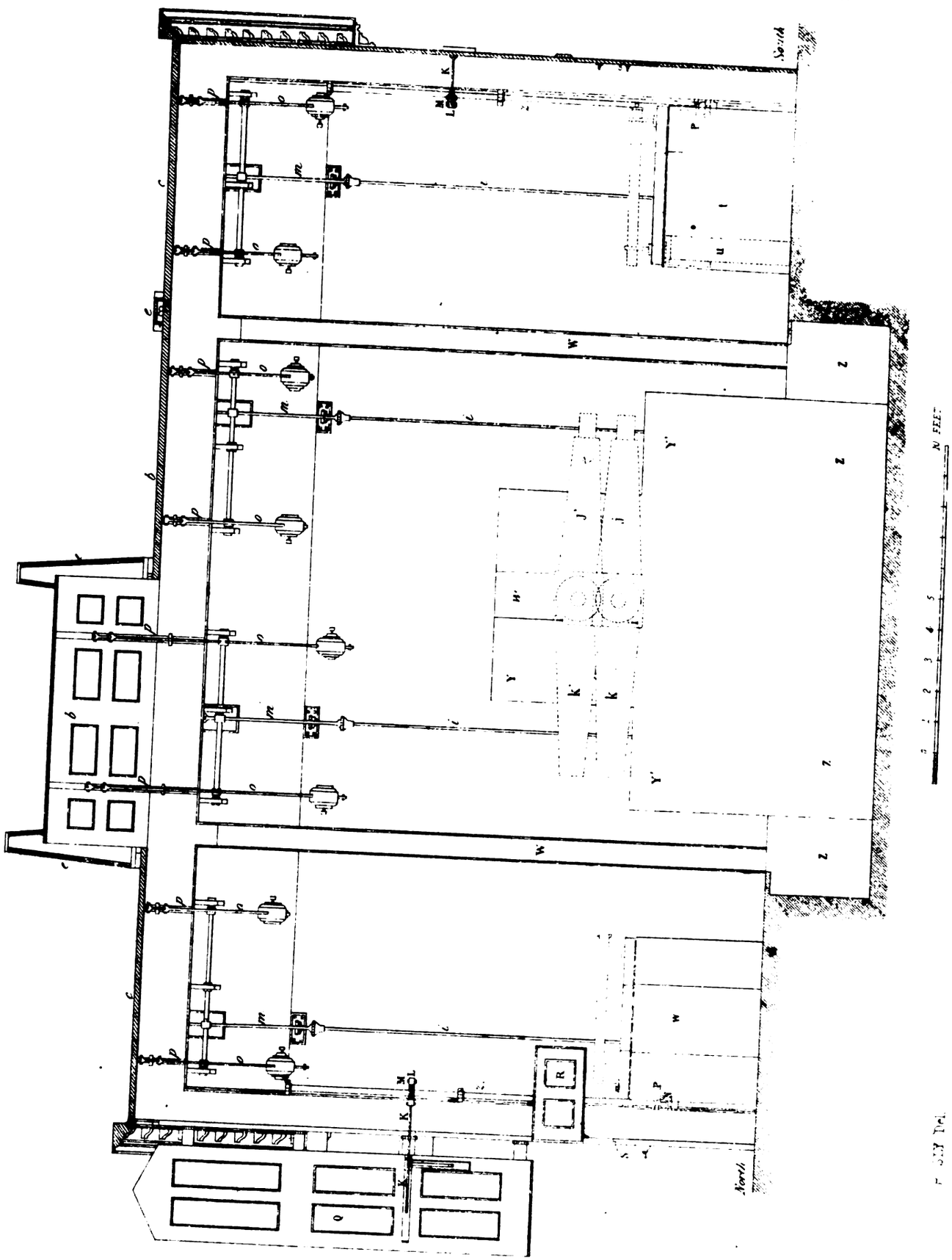

LONGITUDINAL SECTION OF TRANSIT CIRCLE ROOM OF ROYAL OBSERVATORY, GREENWICH.

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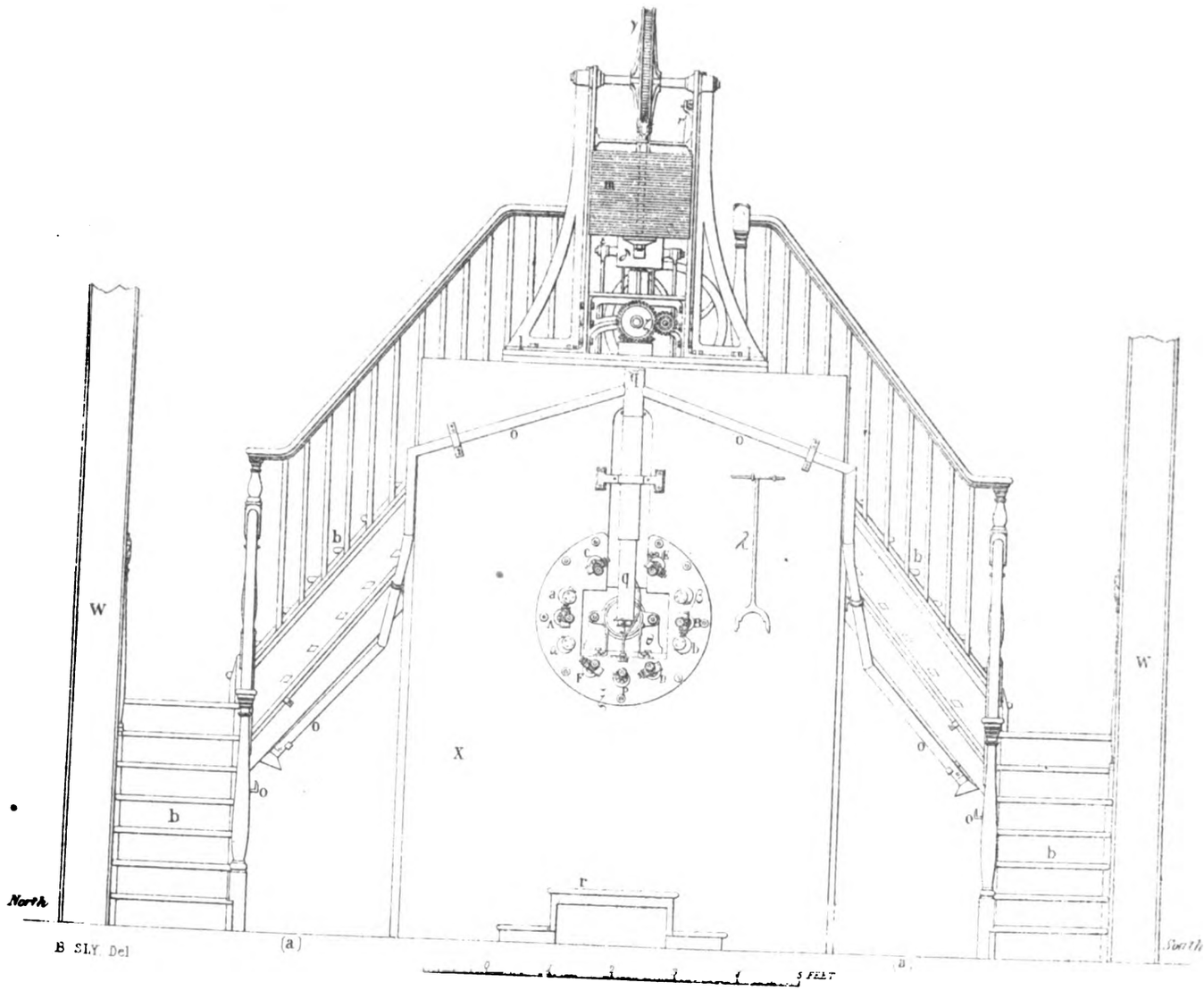

WESTERN FACE OF WESTERN PIER OF TRANSIT-CIRCLE OF ROYAL OBSERVATORY, GREENWICH.

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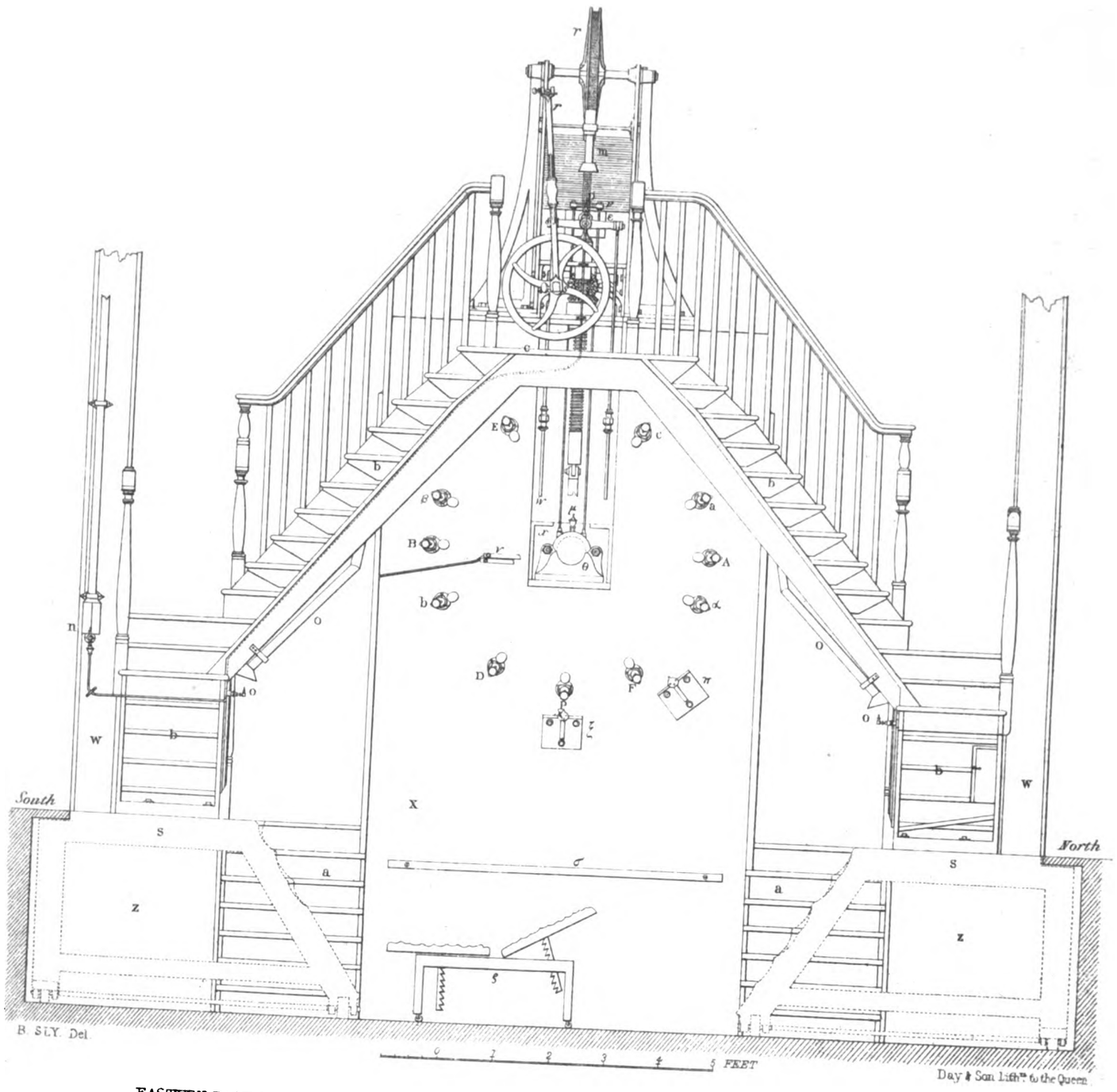

EASTERN FACE OF WESTERN PIER OF TRANSIT-CIRCLE AT THE ROYAL OBSERVATORY, GREENWICH.

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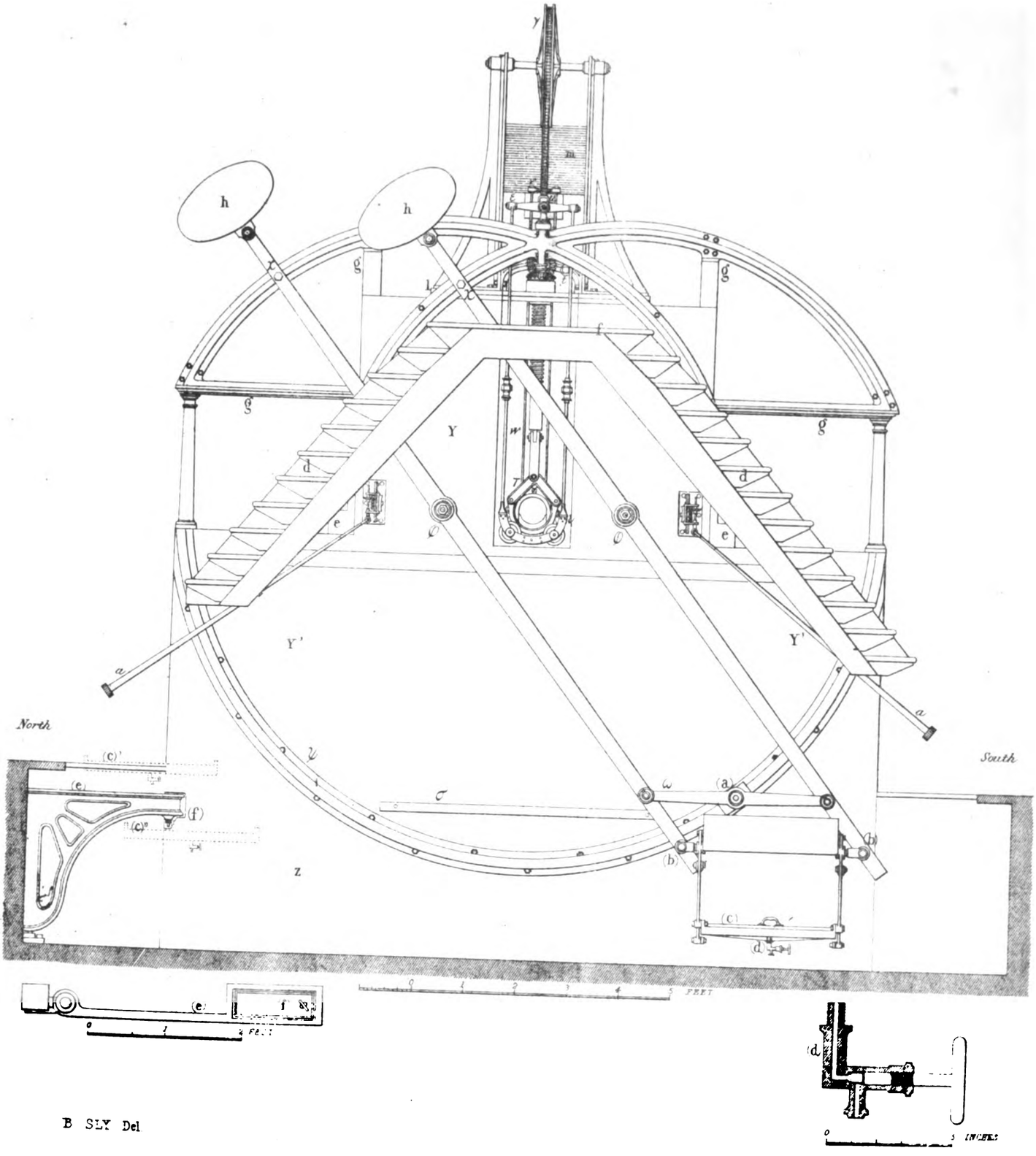

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WESTERN FACE OF EASTERN PIER OF TRANSIT-CIRCLE AT THE ROYAL OBSERVATORY GREENWICH

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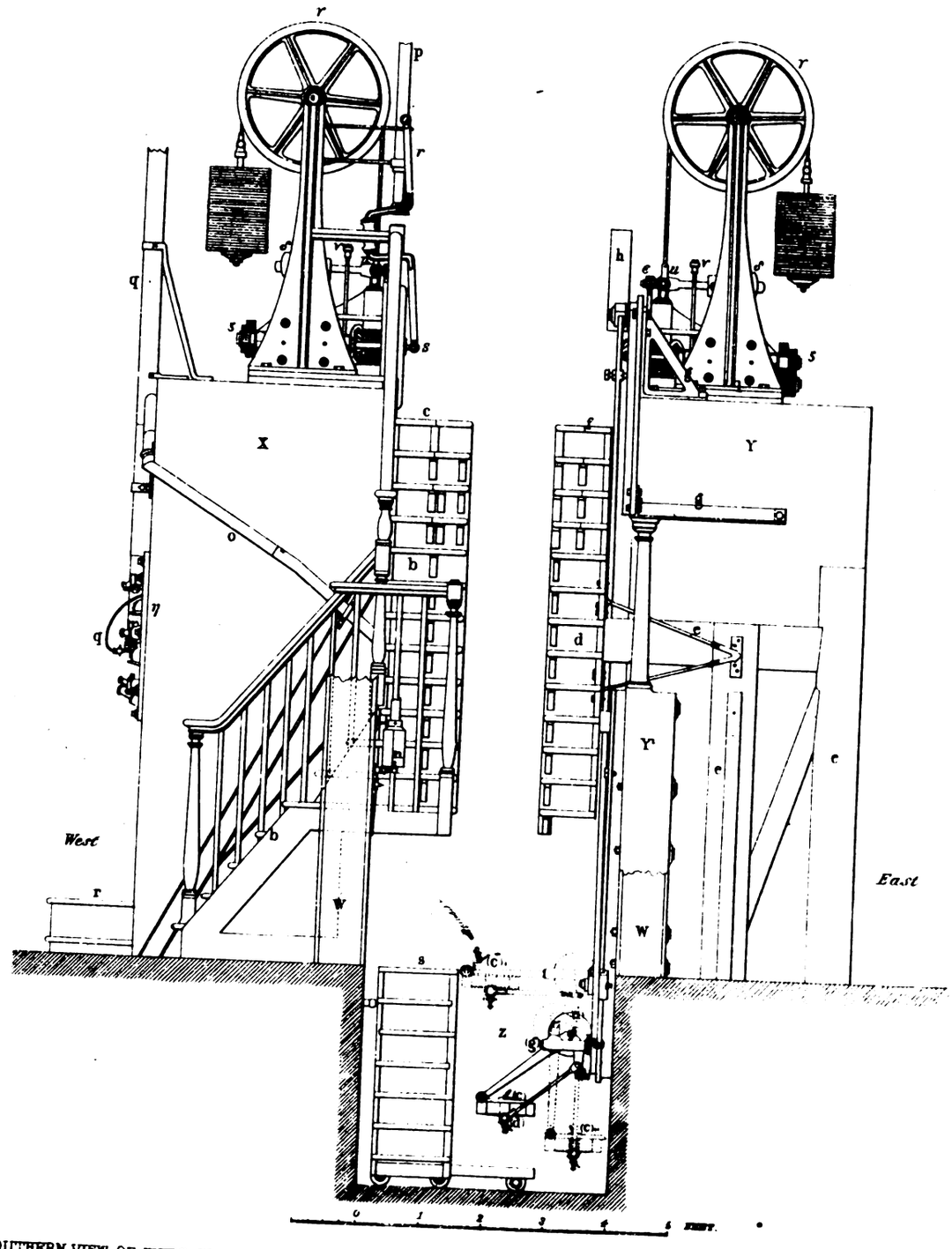

SOUTHERN VIEW OF PIERS, WITH SECTION OF PIT, OF THE TRANSIT CIRCLE, AT THE ROYAL OBSERVATORY, GREENWICH

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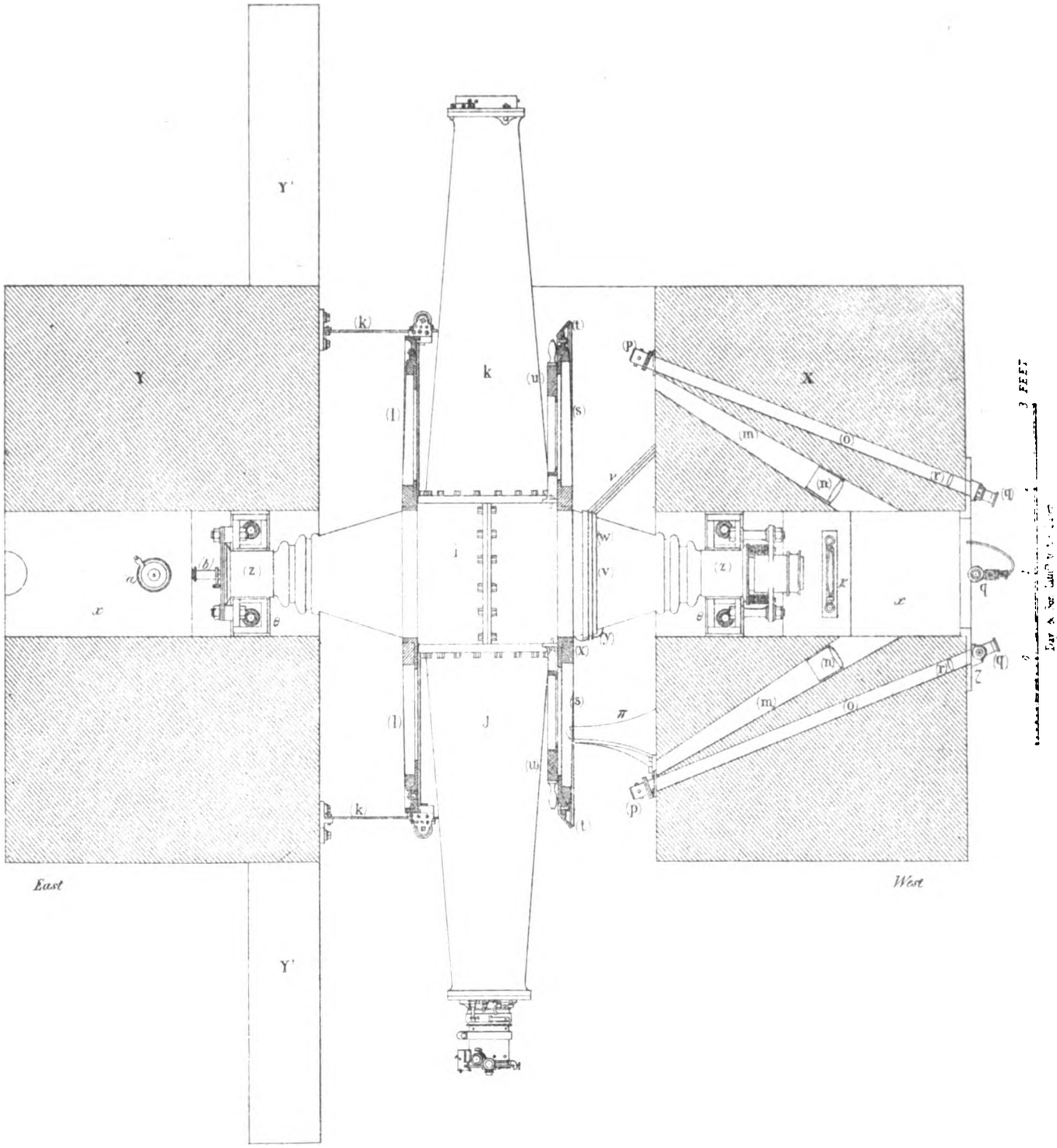

HORIZONTAL SECTION OF PIERS &C AT THE HEIGHT OF THE CENTRE OF THE TRANSIT CIRCLE AT THE ROYAL OBSERVATORY, GREENWICH.

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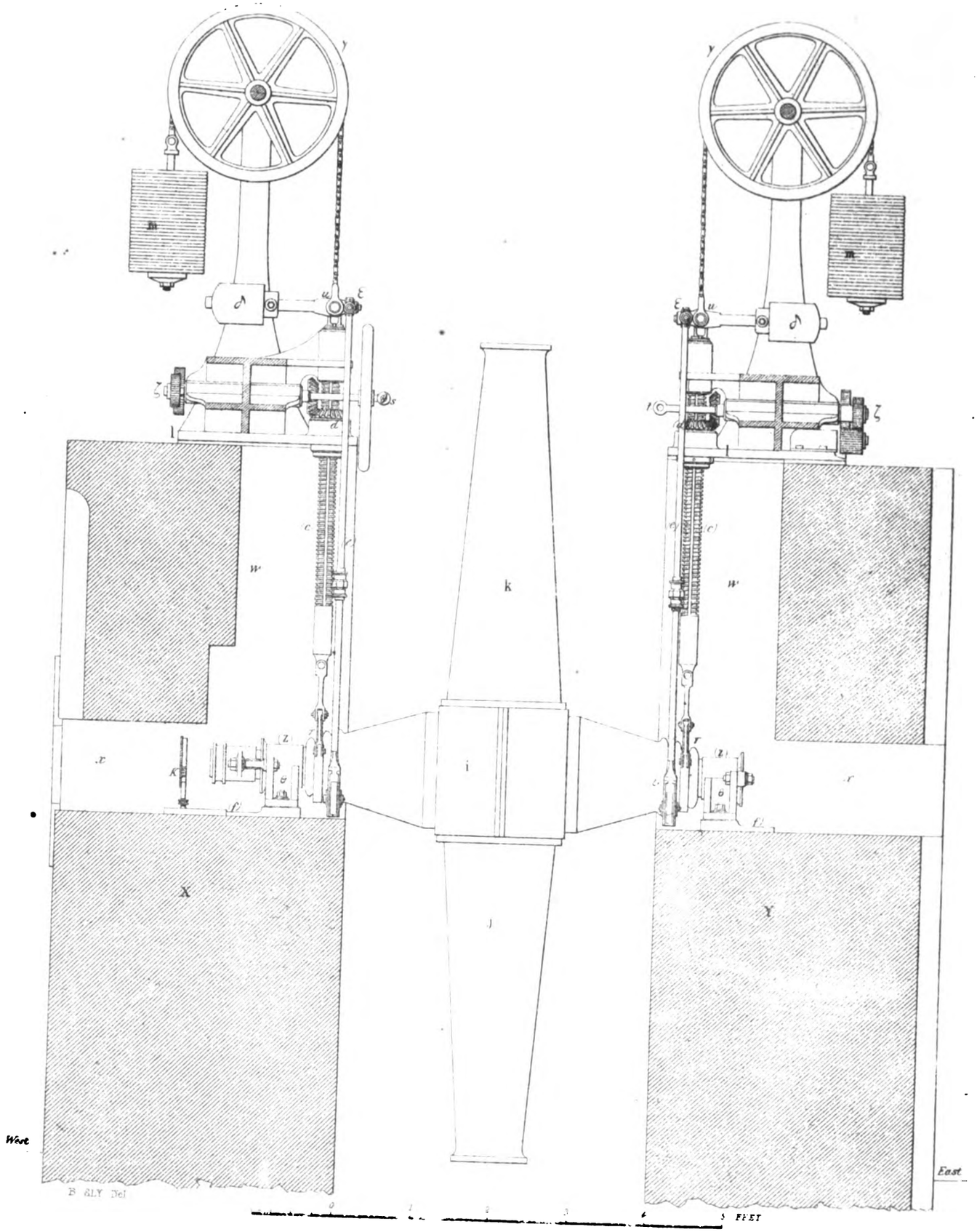

EAST AND WEST VERTICAL SECTION THROUGH THE MIDDLE OF THE PIERS OF THE TRANSIT-CIRCLE AT THE ROYAL OBSERVATORY, GREENWICH.

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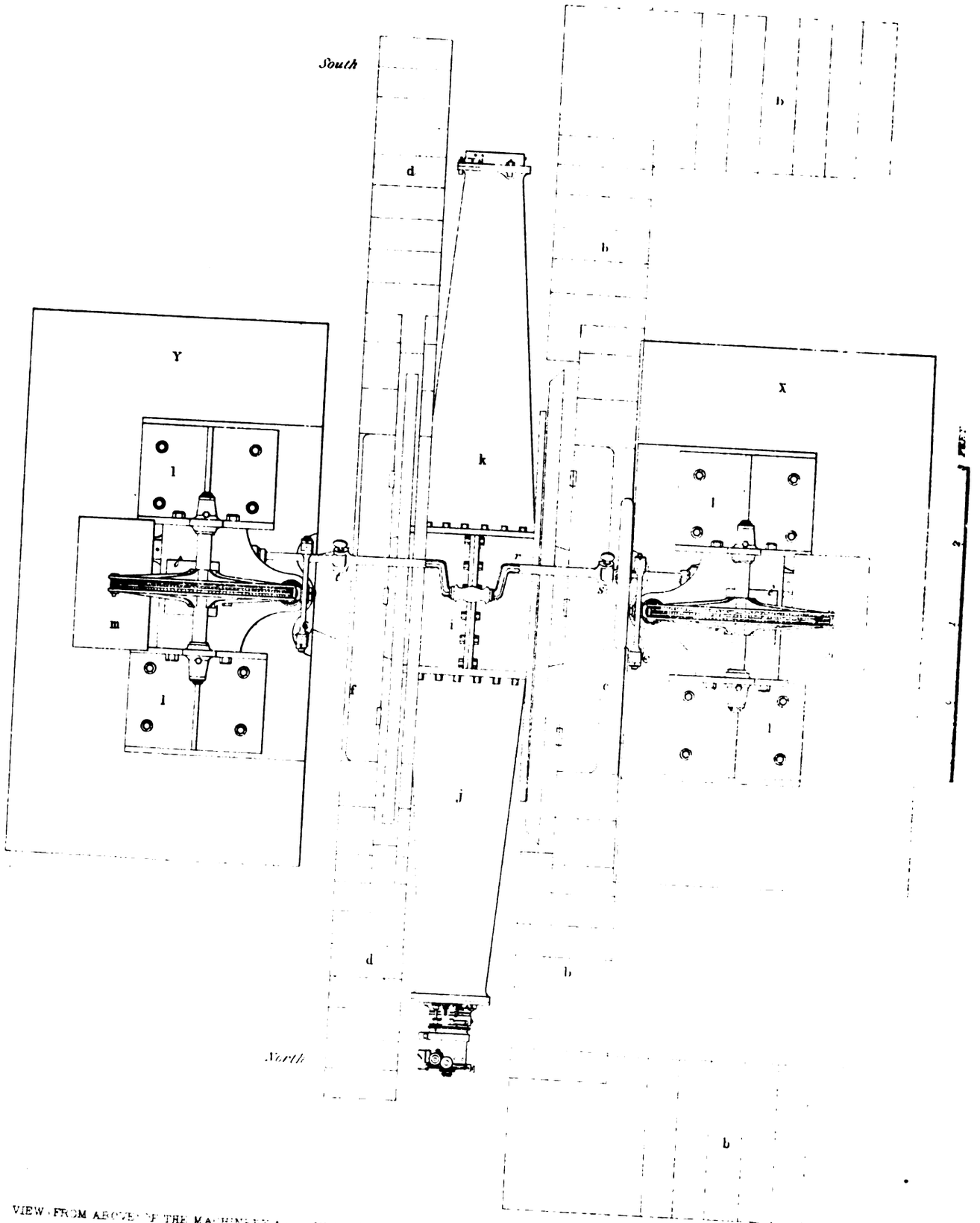

VIEW FROM ABOVE OF THE MACHINERY AS ... USED FOR RAISING THE TRANSIT-CIRCLE AT THE ROYAL OBSERVATORY, GREENWICH.

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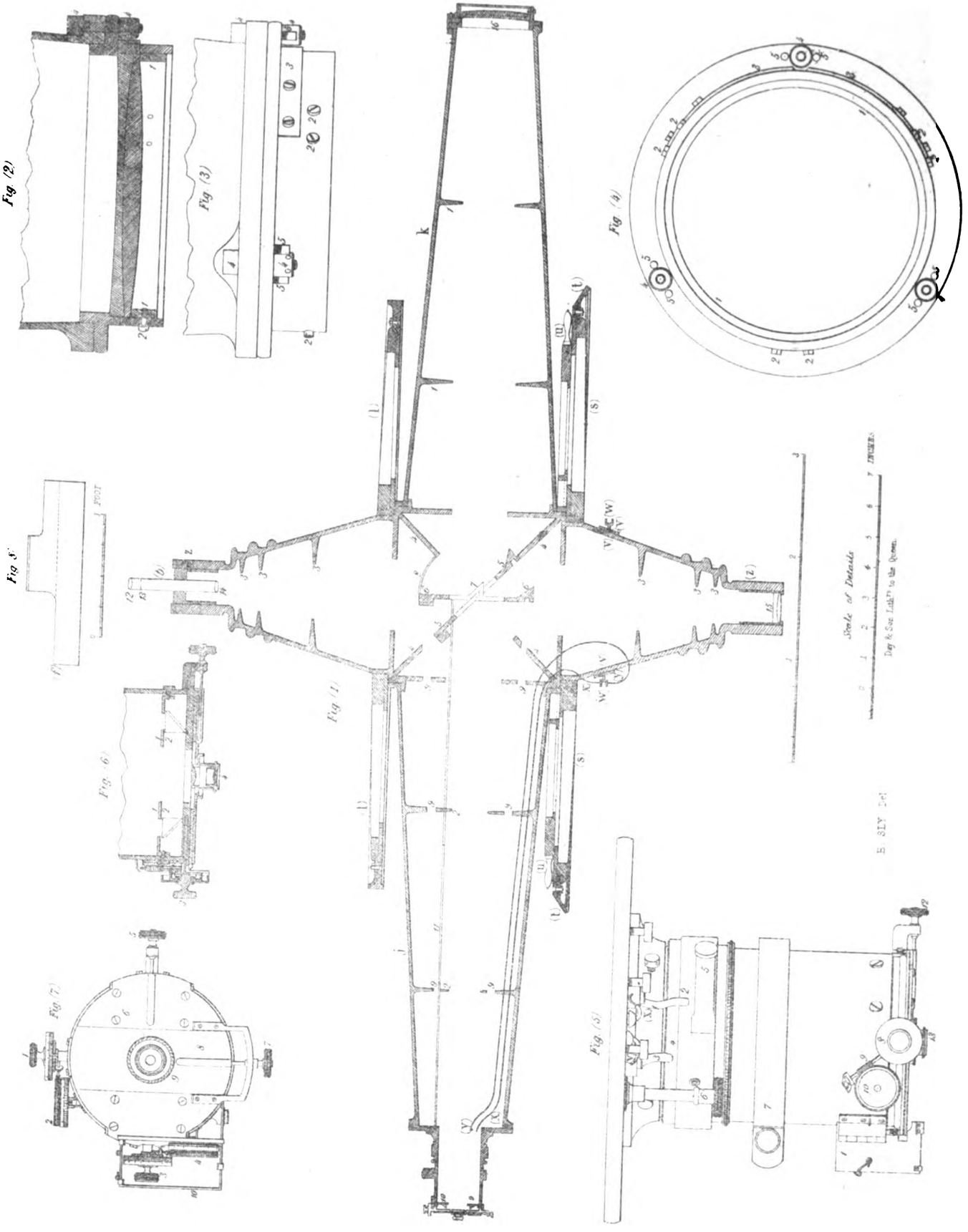

DETAILS (PRINCIPALLY OF THE TELESCOPE) OF THE TRANSIT-CIRCLE AT THE ROYAL OBSERVATORY, GREENWICH

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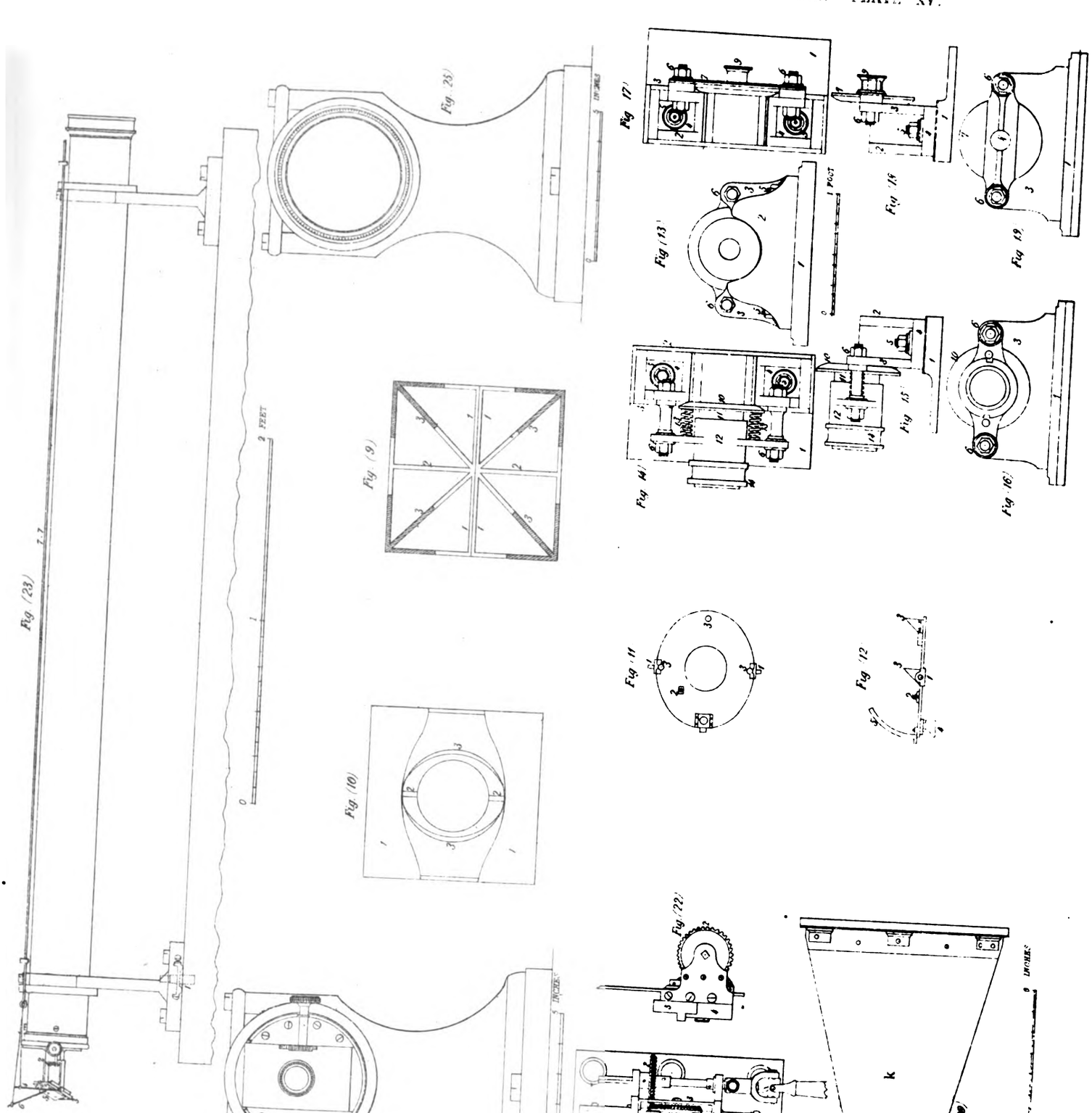

DETAILS OF THE TELESCOPE SUPPORTS, CLAMPS, AND COLLIMATERS, OF THE TRANSIT CIRCLE, AT THE ROYAL OBSERVATORY GREENWICH.

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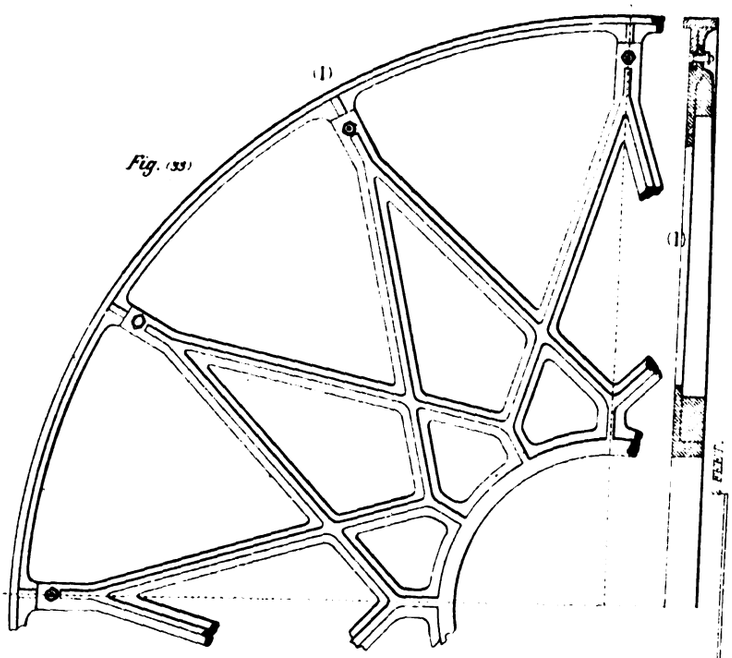

Fig. (33)

Fig. (32)

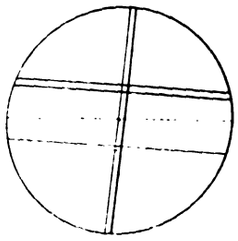

Fig. (28)

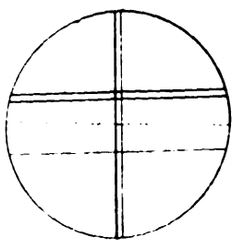

Fig. 29

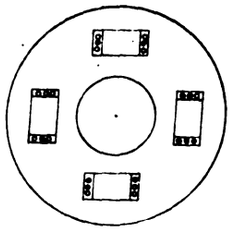

Fig. (26)

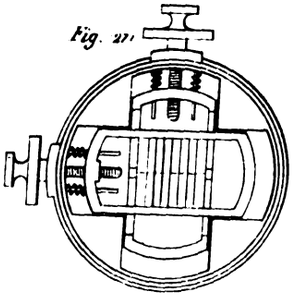

Fig. 27

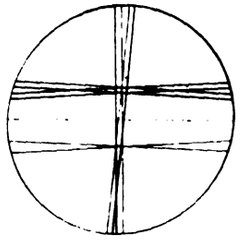

Fig. (30)

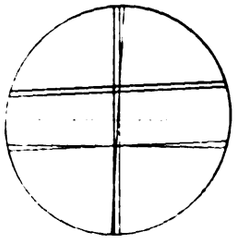

Fig. (31)

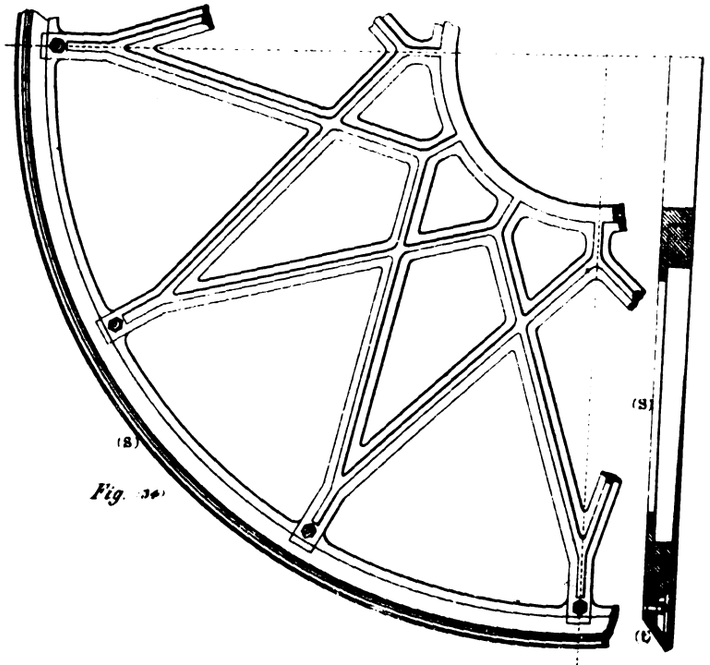

Fig. 34

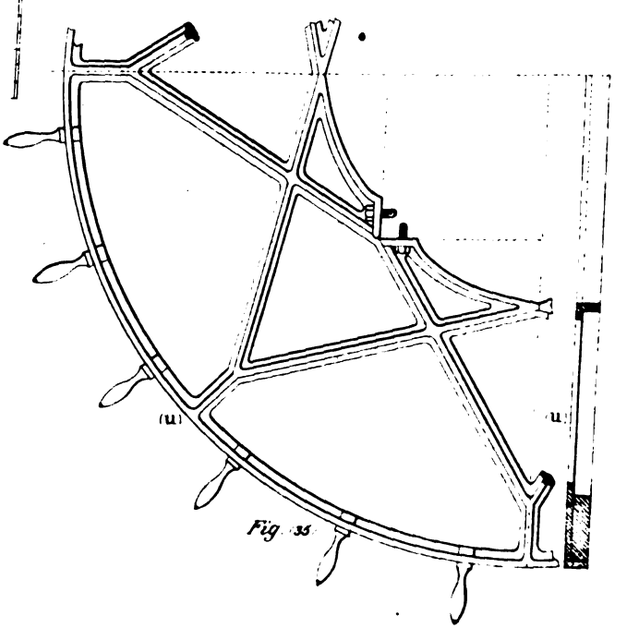

Fig. 35

WIRE-PLATES, NADIR-EYEPIECE, AND CIRCLES, OF THE TRANCIT-CIRCLE AT THE ROYAL OBSERVATORY GREENWICH.

R. SLY Del

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RATES OF CHRONOMETERS

ON TRIAL

FOR PURCHASE BY THE BOARD OF ADMIRALTY,

AT THE

ROYAL OBSERVATORY, GREENWICH.

1868.

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NAME OF MAKER.	No.	Whether 2 or 8 Days.	Construction of Escapement and Balance, from the Description furnished by the Maker.	(II.) WEEKLY SUMS OF DAILY RATES									
				Jan. 18—25 *	Jan. 25 to Feb. 1 *	Feb. 8—15 *	Jan. 11—18 *	Feb. 1—8 *	Feb. 15—22	April 11—18	Feb. 29 to Mar. 7	Feb. 22—29	April 4—11
				s	s	s	s	s	s	s	s	s	s
P. Birchall	1069	2	Ordinary balance, with slight alteration.	− 5·9	− 5·1	− 4·0	− 5·5	− 4·0	− 3·0	− 2·7	− 3·0	− 4·0	− 3·5
F. Fletcher	2818	2	Auxiliary as usual.	− 12·3	− 12·1	− 11·1	− 12·4	− 12·0	− 10·8	− 3·5	− 11·7	− 12·4	− 7·5
Davison	1868	2	Auxiliary compensation.	− 8·1	− 7·0	− 5·9	− 6·1	− 5·1	− 4·1	− 3·0	− 3·4	− 4·0	− 4·6
Gowland	2895	2	Auxiliary compensation.	− 11·1	− 12·1	− 11·0	− 13·2	− 12·4	− 10·1	− 10·0	− 11·3	− 12·6	− 11·4
Young	952	2	Auxiliary compensation.	− 4·3	− 4·5	− 5·8	− 3·0	− 4·5	− 5·2	− 4·9	− 4·5	− 5·0	− 4·3
Kullberg	1006	2	Kullberg's flat rim balance, without auxiliary.	+ 1·1	− 1·9	− 1·4	− 0·8	− 2·1	− 1·5	+ 1·4	− 1·4	− 2·2	+ 0·5
Brotherton	5157	2	Construction as in former years.	+ 9·9	+ 10·1	+ 10·9	+ 9·1	+ 10·9	+ 12·7	+ 20·4	+ 13·9	+ 12·0	+ 19·5
Hennessy	3756	2	Poole's auxiliary compensation to the balance.	− 0·2	− 3·4	+ 0·1	− 1·8	− 2·9	0·0	+ 1·0	− 0·4	− 2·1	+ 0·1
Cairns	789	2	Auxiliary to balance.	− 14·9	− 20·5	− 23·1	− 15·7	− 24·0	− 24·8	− 16·1	− 25·7	− 27·5	− 16·9
Roberts	1187	2	Kullberg's flat rim balance, without auxiliary.	+ 9·5	+ 7·0	+ 9·9	+ 3·0	+ 9·5	+ 10·0	+ 15·0	+ 10·2	+ 8·6	+ 16·3
Reid and Sons	1258	2	Auxiliary compensation to the balance.	− 4·7	− 7·3	− 6·4	− 6·0	− 7·1	− 6·0	− 1·9	− 7·4	− 8·0	− 2·1
Chittenden	740	2	Auxiliary as in former years.	− 5·5	− 7·5	− 7·3	− 6·8	− 7·9	− 7·3	+ 4·9	− 7·1	− 7·4	+ 4·2
Penlington	1729	2	Auxiliary compensation.	− 2·3	− 6·5	− 6·6	+ 2·6	− 5·1	− 0·9	+ 7·0	+ 2·4	+ 1·1	+ 6·9
Isaac	328	2	Improved flat balance in atomic proportion.	− 22·2	− 21·3	− 22·5	− 19·1	− 23·9	− 22·7	− 14·6	− 23·0	− 23·8	− 17·0
Dent	3041	2	Dent's patent balance.	− 13·6	− 16·9	− 17·9	− 10·0	− 17·5	− 17·7	− 12·1	− 16·8	− 18·1	− 10·5
J. B. Fletcher	1928	2	Auxiliary compensation.	− 14·7	− 14·2	− 11·5	− 14·8	− 12·3	− 10·0	− 0·6	− 10·6	− 11·0	− 3·0
McGregor and Co.	4074	2	Auxiliary to balance.	+ 4·4	+ 4·6	+ 3·6	+ 1·8	+ 6·9	+ 5·6	+ 11·6	+ 7·4	+ 5·5	+ 10·0
Dent	3043	2	Dent's patent balance.	+ 8·6	+ 7·6	+ 5·5	+ 16·1	+ 7·5	+ 7·6	+ 14·0	+ 9·5	+ 7·5	+ 15·4
C. Frodsham	3392	2	Usual balance, with supplementary compensation.	− 3·2	− 0·4	+ 4·1	− 7·4	+ 3·1	+ 3·3	− 0·4	+ 8·6	+ 5·0	− 3·5
Reid and Sons	1255	2	Auxiliary compensation to the balance.	− 22·6	− 28·5	− 28·0	− 19·0	− 25·9	− 25·0	− 17·0	− 25·9	− 27·1	− 10·0
M. F. Dent	25492	2	Auxiliary to balance.	− 13·9	− 11·5	− 11·7	− 10·5	− 11·1	− 9·7	− 1·8	− 7·3	− 5·7	− 0·6
Lister and Sons	635	2	Poole's auxiliary compensation to the balance.	− 17·1	− 20·7	− 19·1	− 20·7	− 19·9	− 18·4	− 18·0	− 19·2	− 18·5	− 15·5
W. P. Birchall	46	2	Ordinary balance, with slight alteration.	− 5·4	− 7·0	− 7·7	− 2·2	− 10·9	− 7·3	− 4·5	− 4·6	− 10·0	− 7·0
Cairns	800	2	Auxiliary to balance.	+ 14·5	+ 12·5	+ 14·0	+ 8·0	+ 16·5	+ 15·1	+ 9·1	+ 14·1	+ 13·3	+ 10·0
Birch	1619	2	Auxiliary compensation.	+ 7·3	+ 12·9	+ 11·3	+ 5·2	+ 16·5	+ 13·7	+ 9·4	+ 16·0	+ 15·0	+ 13·9
McGregor and Co.	3804	2	Auxiliary to balance.	− 23·5	− 25·9	− 25·3	− 20·4	− 23·6	− 21·7	− 21·2	− 21·2	− 24·4	− 18·4
J. B. Fletcher	2967	2	Auxiliary compensation.	− 3·4	− 3·1	+ 0·3	− 1·7	− 0·4	+ 0·9	+ 15·0	+ 2·0	+ 0·9	+ 14·5
Parkinson and Bouts	1097	2	Ordinary construction, with slight alteration.	− 0·5	− 0·2	+ 0·1	+ 0·5	+ 1·1	+ 5·1	+ 8·2	+ 7·2	+ 4·4	+ 14·6
F. Fletcher	3096	2	Auxiliary as usual.	− 9·6	− 9·1	− 8·5	− 9·4	− 7·9	− 7·7	− 2·3	− 10·5	− 10·8	− 0·7
C. Frodsham	3345	2	Usual balance, with continuous auxiliary.	− 4·0	− 5·4	− 5·3	− 7·0	− 4·0	− 4·3	+ 3·5	− 2·2	− 5·3	+ 4·1
Brunton	597	2	Auxiliary compensation.	+ 6·0	+ 6·5	+ 8·2	− 2·2	+ 8·1	+ 10·1	+ 19·7	+ 13·0	+ 10·1	+ 17·3
Russell and Son	9606	2	Kullberg's flat rim balance, without auxiliary.	+ 2·2	+ 0·4	+ 3·0	+ 0·1	+ 1·6	+ 3·5	+ 11·9	+ 5·1	+ 2·5	+ 12·3
Langford	1777	2	Kullberg's flat rim balance, without auxiliary.	+ 4·4	+ 5·0	+ 8·2	− 1·0	+ 7·7	+ 10·2	+ 29·0	+ 11·9	+ 10·5	+ 28·1
Glover	352	2	Auxiliary compensation, acting on a flat pendulum spring.	+ 10·0	+ 8·0	+ 7·9	+ 9·3	+ 7·6	+ 8·5	+ 16·1	+ 7·9	+ 8·0	+ 16·6
J. Fletcher	2888	2	Auxiliary compensation.	+ 7·2	+ 9·5	+ 11·0	+ 7·5	+ 11·0	+ 13·5	+ 21·5	+ 14·4	+ 12·6	+ 20·0
Sewill	2692	2	Improved balance.	+ 6·2	+ 6·6	+ 7·4	+ 6·3	+ 7·4	+ 8·4	+ 15·5	+ 8·5	+ 7·2	+ 17·0
Sewill	2695	2	Auxiliary compensation.	− 9·8	− 7·0	− 3·0	− 7·9	− 3·0	+ 0·8	+ 15·2	+ 3·0	+ 1·7	+ 12·4
Birch	1618	2	Auxiliary compensation.	− 15·8	− 14·5	− 13·5	− 12·7	− 10·5	− 8·6	+ 10·5	− 5·5	− 5·0	+ 14·7
Dell and Co.	19368	2	Auxiliary acting at low temperatures.	+ 3·6	+ 5·2	+ 2·4	+ 8·8	+ 3·2	+ 10·6	+ 21·0	+ 13·5	+ 9·9	+ 22·0
Glover	351	2	Gridiron auxiliary compensation.	− 5·5	− 7·0	− 7·5	− 5·0	− 8·0	− 5·2	+ 18·1	− 2·0	− 2·9	+ 17·4
C. M. Frodsham, jun.	3362	2	Usual balance, with auxiliary compensation.	− 9·5	− 6·7	+ 5·4	− 7·9	− 2·2	+ 4·1	− 3·1	− 3·0	− 2·6	− 2·1
Whiffin	508	2	Hartnup's balance.	− 4·8	− 0·2	+ 7·3	− 1·6	+ 3·7	+ 10·8	+ 15·0	+ 14·3	+ 14·0	+ 15·1
Hammersley	170	2	Improved compensation: "tria in uno" balance spring.	+ 0·5	− 1·9	+ 3·3	− 0·7	+ 2·9	+ 5·8	+ 31·3	+ 9·9	+ 7·5	+ 26·9
Parkinson and Bouts	648	2	Ordinary construction, with slight alteration.	− 14·4 *	− 13·0 *	− 12·5 *	− 11·5 *	− 15·9 *	− 12·9	− 17·7	− 19·3	− 15·6	+ 4·0
Chronometrical Thermometer			.....	s +1712·3	s +1453·2	s +1418·0	s +1416·5	s +1244·0	s +1151·0	s + 917·0	s + 907·0	s + 858·5	s + 600·5
Extremes of Temperature as shown by the Self-Registering Thermometers			.....	° ° 36—50	° ° 40—53	° ° 39—52	° ° 40—52	° ° 45—54	° ° 46—55	° ° 45—60	° ° 49—57	° ° 49—59	° ° 47—66

* During these weeks the North window of the Chronometer Room was left open.

† During these weeks the Chronometers were placed in the chamber of a stove heated by jets of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

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IN THE ORDER OF TEMPERATURE, AS DETERMINED BY THE CHRONOMETRICAL THERMOMETER.

April 18—25	Apr. 25 to May 2	May 2—9	May 23—30	May 9—16	May 16—23	July 4—11	June 27 to July 4	July 11—18	March 7—14 †	March 21—28 †	March 14—21 †	May 30 to June 6 †	Mar. 28 to Apr. 4 †	June 20—27 †	June 6—13 †	June 13—20 †	NAME OF MAKER.	No.
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°		
− 4·3	− 4·6	− 3·9	− 2·5	− 3·5	− 2·1	− 0·1	− 0·4	+ 2·4	− 1·5	− 2·6	− 3·0	+ 0·7	− 2·4	− 1·5	− 3·4	− 4·6	P. Birchall	1069
− 4·0	− 6·0	− 7·5	− 8·6	− 9·5	− 11·0	− 8·7	− 9·1	− 6·6	− 14·4	− 10·7	− 12·8	− 6·4	− 10·0	− 4·4	− 3·4	− 3·4	F. Fletcher	2818
− 1·9	− 3·6	− 4·5	− 2·7	− 3·4	− 3·1	0·0	− 0·1	+ 1·5	− 4·6	− 4·1	− 9·0	− 2·7	− 4·3	+ 3·9	+ 0·5	+ 3·2	Davison	1868
− 11·4	− 12·1	− 11·4	− 12·9	− 13·0	− 12·0	− 12·8	− 7·1	− 9·2	− 10·8	− 7·0	− 9·8	− 5·6	− 7·1	− 3·5	− 6·1	− 6·4	Gowland	2895
− 2·2	− 2·8	− 0·3	+ 1·0	− 0·3	+ 0·5	+ 6·7	+ 4·3	+ 5·1	− 6·1	− 7·7	− 10·0	− 3·1	− 7·4	+ 0·7	− 2·4	− 1·3	Young	952
+ 1·1	+ 0·4	+ 1·6	+ 2·5	+ 2·0	+ 1·9	+ 3·3	+ 2·4	+ 4·4	− 1·0	+ 2·4	− 0·4	+ 5·6	+ 2·6	+ 8·8	+ 10·1	+ 9·9	Kullberg	1006
+ 21·5	+ 20·1	+ 20·4	+ 21·8	+ 20·0	+ 19·7	+ 26·7	+ 23·7	+ 28·5	+ 13·4	+ 17·1	+ 14·6	+ 23·1	+ 18·0	+ 23·4	+ 20·5	+ 20·6	Brotherton	5157
− 3·5	− 3·7	− 0·8	+ 1·8	+ 1·5	+ 3·2	+ 0·9	− 0·4	+ 1·0	0·0	0·0	− 1·5	+ 0·9	+ 0·4	− 5·1	− 6·9	− 6·5	Hennessy	3756
− 20·1	− 21·8	− 19·6	− 20·4	− 19·9	− 19·1	− 15·2	− 15·7	− 13·0	− 21·5	− 19·6	− 21·3	− 21·5	− 18·5	− 21·6	− 25·2	− 24·9	Cairns	789
+ 14·1	+ 13·9	+ 14·2	+ 13·0	+ 14·9	+ 14·0	+ 9·4	+ 9·6	+ 8·0	+ 10·4	+ 12·4	+ 10·9	+ 14·1	+ 12·2	+ 4·8	+ 11·9	+ 5·7	Roberts	[illegible]
− 4·5	− 5·5	− 1·2	− 0·4	− 0·4	0·0	+ 3·5	+ 2·9	+ 3·5	− 2·8	− 1·4	− 2·8	− 1·0	− 1·6	− 4·8	− 6·5	− 7·6	Reid and Sons	1258
+ 5·1	+ 4·1	+ 5·4	+ 7·0	+ 6·9	+ 5·6	+ 12·9	+ 12·0	+ 12·1	− 3·8	− 0·2	− 0·4	+ 4·9	+ 2·8	+ 11·1	+ 8·1	+ 9·5	Chittenden	740
+ 4·5	+ 4·5	+ 5·6	+ 6·1	+ 5·5	+ 4·9	+ 5·4	+ 4·0	+ 6·6	+ 5·0	+ 0·4	+ 2·6	+ 6·0	+ 2·1	+ 9·0	+ 7·9	+ 9·6	Penlington	1729
− 14·6	− 15·8	− 15·0	− 16·9	− 18·0	− 15·6	− 10·1	− 11·9	− 12·0	− 22·5	− 21·3	− 22·1	− 18·1	− 24·1	− 14·2	− 14·9	− 14·8	Isaac	328
− 11·5	− 14·9	− 13·9	− 12·2	− 14·2	− 15·2	− 10·0	− 11·1	− 12·7	− 17·5	− 18·1	− 19·6	− 17·1	− 19·8	− 16·9	− 16·9	− 17·9	Dent	3041
− 5·4	− 5·5	− 4·5	− 5·0	− 5·0	− 4·5	+ 2·3	− 0·3	+ 5·1	− 9·4	− 5·6	− 6·0	− 1·5	− 4·9	− 0·1	− 2·5	− 1·5	J. B. Fletcher	1928
+ 11·4	+ 8·5	+ 9·4	+ 12·1	+ 11·1	+ 12·5	+ 16·4	+ 15·8	+ 16·8	+ 7·2	+ 8·5	+ 6·3	+ 9·0	+ 8·5	+ 8·0	+ 3·0	+ 3·0	McGregor and Co.	4074
+ 15·5	+ 14·0	+ 16·5	+ 21·5	+ 18·9	+ 20·5	+ 18·9	+ 19·6	+ 20·1	+ 15·9	+ 15·8	+ 14·6	+ 20·6	+ 14·2	+ 20·2	+ 18·9	+ 18·4	Dent	3043
− 4·5	− 1·6	+ 2·6	+ 0·5	+ 3·5	+ 2·6	+ 3·1	+ 0·2	+ 4·0	+ 6·3	+ 4·4	+ 1·6	− 0·1	+ 0·5	− 5·0	− 7·5	− 8·8	C. Frodsham	3392
− 18·1	− 22·9	− 23·6	− 24·1	− 23·5	− 20·9	− 10·3	− 11·1	− 10·2	− 20·3	− 13·0	− 16·7	− 20·4	− 11·5	− 13·5	− 18·0	− 17·0	Reid and Sons	1255
− 1·0	− 1·1	+ 0·6	+ 2·6	+ 1·3	+ 1·7	+ 7·4	+ 7·9	+ 9·0	− 2·5	− 2·6	− 4·3	+ 6·4	+ 0·8	+ 12·6	+ 8·9	+ 10·7	M. F. Dent	25492
− 18·9	− 16·6	− 16·0	− 10·3	− 10·4	− 9·2	− 3·8	− 6·3	− 5·4	− 14·3	− 12·6	− 13·0	− 12·3	− 14·4	− 15·9	− 18·8	− 19·6	Lister and Sons	635
− 4·0	− 8·2	− 3·3	− 7·0	− 3·0	− 1·4	+ 4·9	+ 5·0	+ 6·0	− 2·9	+ 2·0	− 0·6	+ 2·9	+ 2·6	+ 6·0	+ 2·4	+ 3·1	W. P. Birchall	46
+ 11·4	+ 9·4	+ 9·6	+ 9·5	+ 10·5	+ 9·5	+ 11·6	+ 9·3	+ 11·5	+ 7·1	+ 4·5	+ 5·4	+ 5·4	+ 4·0	+ 1·6	− 3·4	− 4·5	Cairns	800
+ 11·5	+ 12·1	+ 15·6	+ 15·7	+ 14·2	+ 12·7	+ 25·4	+ 23·1	+ 25·9	+ 18·8	+ 11·5	+ 15·2	+ 12·4	+ 13·1	+ 13·9	+ 14·6	+ 12·4	Birch	1619
− 27·0	− 25·9	− 18·3	− 14·9	− 15·2	− 13·1	− 7·0	− 6·0	− 2·1	− 20·3	− 11·6	− 13·5	− 14·1	− 10·9	− 7·5	− 13·3	− 10·6	McGregor and Co.	3804
+ 14·0	+ 12·6	+ 12·8	+ 12·0	+ 11·9	+ 10·2	+ 15·1	+ 14·0	+ 12·4	− 4·6	+ 2·5	+ 0·1	+ 7·0	+ 4·0	+ 10·3	+ 8·0	+ 9·2	J. B. Fletcher	2967
+ 9·8	+ 8·9	+ 9·5	+ 12·3	+ 12·4	+ 12·1	+ 17·9	+ 17·0	+ 15·9	+ 10·3	+ 11·5	+ 7·5	+ 7·7	+ 7·1	+ 5·7	+ 3·2	+ 2·6	Parkinson and Bouts	1097
− 1·5	− 7·6	− 10·5	− 7·2	− 9·4	− 9·9	+ 5·8	+ 4·1	+ 5·1	− 17·4	− 16·3	− 17·1	− 5·4	− 10·7	+ 2·5	0·0	+ 1·5	F. Fletcher	3096
+ 7·5	+ 3·4	+ 2·2	+ 3·0	+ 2·9	+ 3·5	+ 12·0	+ 11·0	+ 16·5	+ 4·7	+ 7·4	+ 2·9	+ 13·2	+ 8·5	+ 16·0	+ 7·3	+ 9·0	C. Frodsham	3345
+ 18·1	+ 17·4	+ 19·0	+ 24·0	+ 19·1	+ 19·0	+ 27·5	+ 27·3	+ 26·0	+ 15·6	+ 13·3	+ 11·0	+ 25·4	+ 15·1	+ 30·2	+ 23·0	+ 25·5	Brunton	597
+ 10·0	+ 9·2	+ 10·4	+ 9·9	+ 10·9	+ 10·7	+ 11·8	+ 11·1	+ 12·1	+ 10·9	+ 13·5	+ 10·3	+ 14·1	+ 13·8	+ 24·7	+ 19·0	+ 23·8	Russell and Son	9606
+ 26·0	+ 28·5	+ 28·5	+ 27·9	+ 31·6	+ 31·9	+ 38·1	+ 34·8	+ 38·6	+ 14·0	+ 23·4	+ 17·0	+ 33·9	+ 25·1	+ 40·6	+ 33·3	+ 36·4	Langford	1777
+ 19·9	+ 20·0	+ 21·5	+ 25·0	+ 23·0	+ 26·1	+ 39·2	+ 37·7	+ 44·1	+ 5·3	+ 11·5	+ 2·8	+ 24·9	+ 17·4	+ 33·5	+ 22·5	+ 25·5	Glover	352
+ 23·0	+ 21·1	+ 19·4	+ 20·0	+ 19·0	+ 17·0	+ 24·5	+ 20·6	+ 20·2	− 2·0	− 0·1	− 2·5	+ 9·6	+ 3·1	+ 17·8	+ 16·4	+ 17·5	J. Fletcher	2888
+ 10·8	+ 9·1	+ 11·5	+ 16·5	+ 13·6	+ 18·0	+ 30·5	+ 28·9	+ 30·9	+ 4·4	+ 5·8	− 3·6	+ 26·5	+ 19·4	+ 30·1	+ 29·5	+ 30·6	Sewill	2692
+ 17·3	+ 18·2	+ 20·4	+ 24·0	+ 23·6	+ 26·0	+ 36·2	+ 34·7	+ 38·0	+ 12·5	+ 13·0	+ 12·9	+ 24·0	+ 15·0	+ 29·8	+ 22·0	+ 24·7	Sewill	2695
+ 16·1	+ 14·9	+ 18·1	+ 19·1	+ 19·6	+ 21·4	+ 28·4	+ 29·9	+ 26·4	+ 5·1	+ 9·3	+ 5·5	+ 19·3	+ 10·4	+ 18·6	+ 15·7	+ 15·5	Birch	1618
+ 24·1	+ 23·9	+ 24·0	+ 23·2	+ 23·4	+ 23·4	+ 33·1	+ 32·5	+ 28·5	+ 19·6	+ 23·0	+ 23·5	+ 8·9	+ 23·5	+ 12·5	+ 9·6	+ 11·9	Dell and Co.	19368
+ 18·6	+ 18·4	+ 24·0	+ 26·5	+ 25·5	+ 27·5	+ 52·1	+ 49·9	+ 53·9	+ 0·6	+ 7·8	0·0	+ 35·0	+ 15·2	+ 45·6	+ 38·1	+ 41·4	Glover	351
− 4·4	− 2·6	− 2·6	+ 0·5	− 2·7	− 3·6	+ 1·0	− 0·9	− 5·1	+ 7·5	− 9·6	− 11·9	+ 18·5	− 8·9	+ 0·5	+ 26·1	+ 22·4	C. M. Frodsham, jun.	3362
+ 15·6	+ 11·9	+ 26·4	+ 41·0	+ 27·1	+ 32·5	+ 33·9	+ 41·9	+ 26·7	+ 8·1	+ 1·6	+ 1·5	+ 34·4	+ 5·8	+ 61·0	+ 36·7	+ 45·0	Whiffin	508
+ 28·8	+ 34·0	+ 30·7	+ 23·3	+ 31·8	+ 23·2	+ 55·4	+ 50·0	+ 57·1	− 9·9	− 9·0	− 9·0	+ 13·5	+ 1·5	+ 28·8	+ 19·0	+ 23·7	Hammersley	170
− 24·5	− 32·4	− 33·3	− 29·8	− 37·6	− 39·7	− 60·0	− 59·1	− 64·0	− 55·2 †	− 72·0 †	− 71·5 †	− 57·4 †	− 76·3 †	− 83·2 †	− 79·3 †	− 86·5 †	Parkinson and Bouts	648
+ 606·0	+ 393·5	+ 97·0	− 104·5	− 118·5	− 369·5	− 522·7	− 532·8	− 1023·2	− 1431·5	− 1546·0	− 1624·0	− 1627·0	− 1707·0	− 2087·0	− 2326·5	− 2395·0	Chronometrical Thermometer.	
° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °		
53—62	54—65	56—73	59—72	62—71	64—76	64—78	66—78	70—84	66—84	71—90	74—88	73—93	72—88	81—96	82—96	83—96	Extremes of Temperature as shown by the Self-Registering Thermometers.	

The order of arrangement of the Chronometers in this Table is determined solely by consideration of their irregularities of rate.

One Chronometer has been altogether omitted, it having exhibited such irregularities in its rates as to indicate some derangement of its mechanism.

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REPORT

OF

THE ASTRONOMER ROYAL

TO THE

BOARD OF VISITORS

OF THE

ROYAL OBSERVATORY, GREENWICH,

Read at the Annual Visitation of the Royal Observatory, 1868, *June* 6.

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In the South-East Dome, the alteration proposed last year for rendering the building fire-proof has been completely carried out, under the superintendence of the Admiralty Director of Works. For the wooden staircase, an iron staircase has been substituted. For the two upper wooden floors, there have been fixed floors carried by radiating girders and cross-joists of wrought-iron, whose flanges support light spars which are heavily plastered above and below, and finally carry floors of tiles; a construction which, as I understand, is approved by the best builders of the present day. The lowest floor is paved with flagstones. For the middle room, which is to be appropriated to Chronometers (giving us much more space than we command at present), the requisite tables and shelves, with a Chronometer-oven larger than that which we use now, are in the workmen's hands, but are not yet mounted. In the lower room, I have separated a small space, by a partition of corrugated iron, to be used as Chronometer Office. When all these are ready, the Chronometers will be shifted to this room; and the room vacated by them (above the Computing Room) will be occupied by Computers.

The alteration of the roof of the rotatory dome, to which I alluded in my last Report, has been made, and the leakage has been effectually stopped. There have been occasional small chinks in the upper shutter, &c., as in all places covered with metal.

Of the Magnetic Observatory, I have to describe only a small alteration of flue-pipes in the Basement. I called the attention of the Visitors, in my last Report, to the circumstance that the S.W. (astronomical) part of the Basement was usually warmer than the E. part. To remedy this, first, the gas-stove was shifted in an easterly direction, but its effect was insufficient. Mr. Glaisher then suggested that by providing a proper flue for the gas-burner which illuminates the Horizontal Force Scale, and maintaining this light more constantly instead of the gas-stove, a good equilibrium of temperature might be maintained. This was done, with perfect success; there is no certain difference between the temperature of the two ends of the basement. At the same time, by continual attention to the sources of warmth and ventilation, the temperature of the whole has been maintained in a state of uniformity which *à priori* I should scarcely have thought possible. The great summer heats are now our only enemies, and not very formidable ones.

A proper flue has been provided for the lamp of the Vertical Force scale.

The gas-pipes in this department are usually washed out every week. This operation is attended with the inconvenience of extinguishing the gasburner on the mast (which, as I shall mention, I supposed would at this time be no longer wanted).

No alteration has been made in the Magnetic Offices. A small shed, called the "Telescope-Stand-Shed," has been taken down, to make room for the following building.

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In my last Report, Article VIII., I suggested, as a possible subject for future consideration, the providing of some extraneous room in which our accumulation of printed Productions of the Observatory might be deposited. I have now selected a place on our own grounds, at the south-eastern corner of the inclosure, where a building can be erected, about 35 feet in length and 13 in breadth, its back ranging with the back of the Great Shed, and its end ranging with the back of the Magnetic Offices, a sufficient passage being left at the east end of the Magnetic Offices. I propose to fit up this repository by the simple arrangement of six racks of book-shelves, with three alleys between them, each alley having a separate door at the south end; the illumination being given by sky lights made of thick glass plates, of the same size as slates, and intermingled with the slates of the roof. The materials removed from the old floors of the South-East Dome will supply to a considerable extent the wants of this building.

It is an inconvenience attending this plan, that the free draught of air over our grounds and past our thermometers will be in some measure interrupted. The authorities of the Observatory must look forward to an extension of its grounds; a thing which cannot be effected without difficulty.

Our subterranean telegraph-wires were all broken by one blow, from an accident in the Metropolitan Drainage Works on Croom's Hill, but were speedily repaired. Two of the wires, which I have maintained and still maintain with the hope of application to the service of Time-Signals at Devonport and the Start Point, being at present unemployed, I propose to make use of them (with others) for a time, in a new modification of the Earth-Current-experiment, to be mentioned below.

The line of Railway through Greenwich, which, it was believed, was arranged in a form that met the wishes of all parties, and which had received the sanction of all the branches of the Legislature, has now (I believe) been abandoned. I can scarcely doubt that an equivalent line, possibly with features more objectionable to the Observatory, will at some time be proposed; and the disputes, which have already lasted more than thirty years, will be again roused.

II. Moveable Property:—

In my office of Chairman of successive Commissions on Standards, I had received some Standards of Length and Weight from Departments of Government, and I had purchased other Standards and Apparatus of great historical value (as Ramsden's and Roy's Standards of Length, Kater's Scale-beam for weighing great weights, and others);

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I had also received Standards and Balance presented by the Government of the United States of America: all which had been deposited in the Royal Observatory, from the absolute want of any office in the British Dominions in which they could with propriety be placed. In the course of the last year, a Department of Standards was created, subordinate to the Board of Trade; and to this all the Standards, &c. of which I have spoken, have, with the approval of the various Departments to which they might be considered to belong, been transferred. The "Parliamentary Copies" of the National Standards of Length and Weight, located in the Royal Observatory under sanction of an Act of Parliament, remain here.

The Portable Transit (constructed at Pulkowa, on the principle of view through the axis,) is lent to Colonel Sir Henry James, R.E., Superintendent of the Ordnance Survey. A telescope, one of those formerly used as Reversed Telescope for the collimation of the Transit-Circle, is intrusted to Major Tennant, R.E., for use in the observation in India of the Total Solar Eclipse of August 18. A small spectroscope is lent to Colonel Smyth, R.A.

The portrait of John Dollond is returned from the South Kensington Exhibition of Portraits: and the Clock, used at the Ashford Station for changing the communications of telegraph-wires, and thus giving connexion with the Time-Signal-Ball at Deal, is returned; the necessary adjustments being now made by hand.

III. Manuscripts:—

It is part of the ordinary system of the Observatory to maintain the Manuscripts in the best and safest order. Correspondence of all kinds is always brought to myself, and is deposited in an extensive system of subdivided portfolios in my official room, from which it receives its first and principal arrangement. All papers are punched with the same definite and invariable system of holes. After this, each collection of papers is divided into packets according to well-understood rules; the papers of each packet are united by threads passed through certain holes of the system above mentioned, to form a packet; and the packets are united by stronger strings passing through other holes, to form a book: every paper is thus accessible without removal from its place, and every paper is in its proper place. When these books become inconveniently large, they are handed to a binder, who binds them in the same order, separating one packet from another by a notched paper, with numerical references on the notches. An Index at the beginng shows the place of every packet; and any paper can be found without difficulty.

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The same system is applied to all detached astronomical or other calculations, &c. Those which are made in bound books require no further trouble.

The punctured Chronograph Sheets are preserved in a series of wooden portfolios.

The Catalogue of Manuscripts is maintained and verified as usual.

The copy of Bradley's and Bliss's observations, 1750 to 1762, is in the hands of Dr. Auwers; the copy of Bradley's Zenith-Sector observations has been handed to him by Mr. O. Struve; as also, I believe, the copy of Bradley's loose papers. Great interest is attached by the German Astronomers to the examination of Bradley's originals, or the copies which come next to the originals. I have reason to hope that Dr. Auwers may be induced to visit this country, for the purpose of more severely examining some minute points.

IV. Library :—

The purchases of books are confined to the physical class; and more especially to those which treat of our own subjects, astronomy, magnetism, meteorology, optics; and in these we scarcely go beyond the books whose classical character or antiquity of date seems particularly to claim attention. Our additions therefore are not very extensive. The increase by presents from extraneous bodies is greater. Due attention is given to the binding of small serials, tracts, &c.

The Catalogue of books is carefully maintained, and a comparison of the books with the Catalogue is made every year.

Assistants and Computers are permitted to use the books, under proper regulations. The value of such a Library, both for reference on the matters suggested by the business or correspondence of the Observatory, and for the instruction of all persons connected with the Observatory, is very great.

V. Astronomical Instruments :—

The Transit-Circle is in good order. We have been teased three or four times by the presence, on the wires, of small scraps of iron, which probably were introduced in the operation of cutting away some portions of the central cube. I intend, whenever the object-glass shall be taken off, to explore the interior of the tube as far as possible with magnets, with the hope of picking up any loose particles of iron.

Screw-movements have been applied for adjusting to focus the wires in the field of view of the telescope, and also for adjusting to focus the object-glasses of the micrometer-microscopes of the circle.

New jointed sliding-caps have been applied to cover the holes in the central cube.

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The new Reversed Telescopes are in daily use for reciprocal observation through the pierced central cube. On collecting a number of instances, we think that the reading (as regards transit-wires) with interposition of the pierced cube differs from that when the telescope is removed by nearly half a second. I cannot answer with certainty for this small quantity; but I may remark that, with object-glasses of rather large aperture, an erroneous habit in the application of the eye to the eye-glass, combined with a very small error of focal adjustment, is sure to shew itself by a discordance of this kind.

On the graduated band of the Circle, we have discovered that an injury has been done by the carelessness of the workman formerly employed to wipe and oil the pivots. The soft metal has been slightly scratched in some places; and four divisions have been so much injured that the reading with the microscope-micrometer is nearly impracticable. No real injury is done by this, as there are always other divisions within command of the micrometers.

Observations for the astronomical flexure of the telescope, made on Feb. 10, give sensibly the same value and the same sign for the coefficient of flexure as that found in 1867, namely $-0''{\cdot}34$, instead of $+0''{\cdot}76$, the coefficient found before piercing the central cube. We have very lately discovered that the attachment of a light sun-shade to the telescope-tube produces a very small difference in the flexure of the telescope, and a petty correction will be required to our sun-observations. The subject requires further examination.

No new observations have been made for determining the errors of graduations of the circle; but on comparing the two former series (1850 and 1856) we have come to the conclusion that it was wrong to reject entirely the results of the first series. We are now using the mean of the two.

I adverted, in my last Report, to the inconvenience sometimes produced by the circumstance that the angular value of a revolution of the telescope-micrometer was nearly an aliquot part of a revolution of the microscope-micrometers. Mr. Simms has now mounted a micrometer-screw, whose revolution $=34''{\cdot}5$. The screw as at first mounted was exposed to some strain, from which it has been relieved. We have examined it for ascertaining the difference of readings as the head is turned forwards or backwards, and for the drunkenness of the screw; and find both insensible. In the milled-head of the micrometer, I propose to introduce a modification which I introduced some years ago in the heads of the microscope-micrometers, and which has been found very useful. It is, to make the milled-head conical, and to leave no room for the observer to thrust his fingers under the head. The observer is then compelled to press the micrometer-head and micrometer-frame so that the solid hemisphere upon the screw-axis takes a close bearing in the cup which forms its *appui*.

Four supplementary microscopes have been mounted, for Mr. Stone's experimental readings of the circle.

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I am preparing to mount in the room an Interior Thermometer of a higher class than those hitherto employed.

The steadiness of the Transit-Clock has been improved by making the contact-springs lighter. We have reason to think that it requires a little more compensation for effects of temperature.

I have given a new form to the head of the clock, for admission of small tin boxes in which a few lumps of quicklime will be placed, in order to keep the air about the wheel-work in a state of dryness.

The clocks generally are in good condition.

The Chronograph Barrel Clock continues to go well. The formation of the spiral line by pressure gives satisfaction.

The Reflex Zenith-Tube is in its usual good order.

The old ivory level scales of the Altazimuth have been changed for metallic scales.

With the view of ascertaining whether the changes in the Zero of Azimuth are occasioned by unsteadiness of bearing of the horizontal pivots in their Y's, the counterpoises were entirely removed through the lunation February 23—March 23, and have been somewhat diminished since. No apparent improvement, however, has been produced in these experiments. The instrument is in its usual efficient state.

The Motor-Clock, adjusted to Mean Solar Time, is in good order. This clock is an instrument possessing singular interest, from the nature of the process by which it is adjusted accurately to the Time which it is intended to exhibit; and from the mechanical structure by which, in conjunction with our galvanic apparatus and telegraphic connexion, it is employed in the rating of chronometers, in the distribution of time-signals through Britain, and in enabling us to receive automatic information of the state of various external clocks and time-signals.

All the sympathetic clocks are in good condition.

The Shuckburgh Equatoreal is efficient. It is employed, however, only as a conveniently mounted telescope, without use of its graduated circles.

The Sheepshanks Equatoreal is in good and serviceable order. The aperture of this telescope, and the attachment of clock-work (though not of the highest class) make it a useful instrument in the Observatory.

The South-East Equatoreal is in the best order. The object-glass has lately been separated and cleaned.

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The number of complete observations of the Moon near to the conjunction, is :--

On days when the Moon transited between 21^h and 22^h mean solar time	. . . . .	5
,, ,,	when between 22^h and 23^h . .	1
,, ,,	when between 23^h and 24^h . .	0
,, ,,	when between 0^h and 1^h . .	0
,, ,,	when between 1^h and 2^h . .	3
,, ,,	when between 2^h and 3^h . .	5

The comparison of places of the Moon observed with the two principal instruments gives :—

With the Transit-Circle, 103, or 8·2 per lunation.
With the Altazimuth, 201, or 16·1 per lunation.

Eleven occultations of stars by the Moon have been observed, of which 8 were disappearances and 3 re-appearances ; and 34 phænomena of Jupiter's satellites.

In the whole of these classes of observations, the number of observations, considered in its proportion to the length of the period to which the Report applies, and with due attention to the position of the heavenly bodies, agrees nearly with those of several preceding years.

The observations of less accurate class have not engaged much attention. With the south-east equatoreal, we have so far watched the lunar spot Linnæus as to be well assured that it has undergone no change in the last year. Calculations have been prepared for the time of sunrise and sunset on that spot, and we hope now to examine it with better effect. It will be remarked that the fire-proofing work in the South East Dome has made it impossible for us to use that instrument for several months.

VII. Reduction of Astronomical Observations :—

In the reduction of the transit-observations, the more advanced stages of calculation are necessarily somewhat in arrear as compared with the first steps. The following statement will shew with what degree of closeness all are kept up :—

Corrections for instrumental errors are applied, and Clock-times of transits over true meridian are completed, to . . .	1868 May 3
Clock-errors and clock-rates are computed and applied, and apparent right ascensions are formed, to	April 17
Stars' corrections are computed, to	April 23
Stars' corrections are applied, to	March 31

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Mean Solar Times of observation of Sun, Moon, and Planets, are computed to . . . . . 1868 March 5
Corrections for deficient illumination of limbs of Moon and Planets are computed and applied, to . . . . . 1867 Dec. 31

The stages of reduction of the circle-observations, similarly exhibited, are as follows:—

Corrections for instrumental errors (error of division, flexure of telescope, inclination of wire, zenith-point,) are computed and applied to . . . . . 1868 April 10
Refractions and parallaxes are computed and applied, and true geocentric distances formed, to . . . . . April 10
Stars' corrections computed and applied, to . . . . . April 10
Corrections for deficient illumination of Moon and Planets, computed and applied to . . . . . April 10

In computing the refractions for 1868, the following change has been introduced. On comparing the results for circumpolar stars above and below the pole, at Greenwich and at Melbourne, and on comparing the results found at both observatories for stars common to both, Mr. Stone has ascertained that our refractions ought undoubtedly to be diminished. The character of this change agrees with that which I indicated two years ago, as required by the Altazimuth observations. (For more severe test of this conclusion, it is much to be wished that we were possessed of a star-catalogue formed at the Cape of Good Hope.) Relying on its certainty, however, we have now computed our mean refractions by diminishing those of Bessel's *Fundamenta* the proportion of 1 to 0·99797.

For each star observed in 1867, the results for mean R.A. and mean N.P.D. 1867, January 1, as given by each day's observation, are collected, and the mean is taken. From these, the values of R—D are found: and it appears that the sign of that quantity has changed, the correction to results of direct observations having, in 1866 and 1867, the sign + for southern stars. How far this can be connected with the change in the adopted value of the co-efficient of flexure, I am at present unable to say. The correction to colatitude has been investigated in the usual manner, but with the following modification in one point. Hitherto, it has been the custom to consider the errors of the circle-divisions as perfectly known, and in consequence to combine the result for colatitude-correction derived from observations of Polaris (for instance) with that derived from δ U. Minoris, by simply making the weights proportional to the number of observations (with a factor, nearly the same for both, depending on the polar distance). Now Mr. Stone has remarked that our knowledge of the relative errors of the circle-divisions is itself subject to uncertainty, and therefore that, even if

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The Upper Declination Magnet, the theodolite by which astronomical and magnetical bearings are connected, and the Lower Declination Magnetometer for photographic continuous record of declination, are in good order. There has been no accidental interruption to their action. For quieting the Lower Magnetometer when, in experiments, its oval damper is removed, a wire intended to dip into water has been provided; but no experiments have been made.

The Horizontal Force photographic Magnetometer is in good condition.

The Vertical Force photographic Magnetometer is in excellent state. It was revised by Mr. Simms in the winter: its knife-edge was then found to be a little injured. Since the last Report there has been only one dislocation of the photographic curve (on 1867 May 27), of almost imperceptible magnitude. The maintenance of the rule of avoiding to bring magnets within several yards of the Vertical Force Magnet, seems to have had the desired effect of leaving its magnetical momentum undisturbed.

For investigating the thermometrical corrections of the Horizontal Force and Vertical Force Magnetometers, experiments were made extending from 1867 December 31 to 1868 February 21, by warming the Magnetic Basement by means of the gas stove, and (in alternation) leaving the Basement exposed to the cold of the external air. At first, this was done only for a few hours at a time, but subsequently it was done for one entire day in one state and the following entire day in the other state, the pairs of observations being repeated thirteen times. The results were, that the indications of the Horizonal Force Magnetometer were scarcely changed by change of temperature: while those of the Vertical Force Magnetometer were considerably changed in the direction opposite to that which the ordinary law of thermal changes would have suggested. It is most probable that the change really produced was principally in the iron frame connecting the magnet with the knife-edge.

The Instrument for the photographic record of the intensity of spontaneous Galvanic Earth Currents in two directions has received some changes, the galvanometers being remade, the needle-suspension being made more firm, and the acting parts made more accessible; and it is in very efficient condition. The contemplated arrangement of its galvanic wires will be mentioned in a following section.

Lathe-turned barrels of ebonite are now introduced for carrying the photographic sheets on which all these instruments make their records. This has been long desired, but has become more imperatively necessary now, when the exact correspondence of times on the magnetic barrels with those on the galvanic-current-barrel is assuming great importance.

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The Dip Instrument is in the best order. The needles have been specially revised by Mr. Simms.

The Deflexion apparatus also has been thoroughly revised. It still bears the weak connexion of telescope to which I have formerly alluded.

Without entering into details on all the Meteorological Instruments; but remarking only that the class adapted both to eye-observation and to photographic registration includes barometers and thermometers, dry-bulb and wet-bulb; that the class adapted to mechanical record includes pressure, direction, and speed of wind, and fall of rain (by Osler's, Robinson's, and Crosley's instruments); and that there are four other pluviometers at different elevations, thermometers at different depths in the ground, and maximum and minimum thermometers in the Thames; I may state generally that all are in excellent condition. The friction of the photographic barometer was detected and remedied. Osler's Anemomometer, in its modified form, gives a very delicate register of small pressures, but its records of large pressures seem to be larger than those which it would have given in its former state: I cannot assert positively that they are larger; nor, if it be so, can I explain the cause: it is certain that the experimental evaluation of the pressure-scale was accurate. Robinson's Anemometer was broken on 1868 February 1 after having recorded 1494 miles in the preceding 48 hours; it was replaced, in a stronger form, on February 11.

The Electrical apparatus is not efficient. I have given little attention to it, having hoped to receive an instrument on the plan proposed by Professor Sir W. Thomson. An Actinometer is under trial which, it is hoped, will maintain its adjustments.

X. Magnetical and Meteorological Observations:—

With the Declination Theodolite, circumpolar stars have been observed about twice in a month, and a fixed mark much more frequently. Absolute horizontal magnetic force has been measured once or twice a month. The photographic magnetometers have been constantly in action, except when under adjustment or experiment. Dips, as a general rule, have been observed nearly once a week. The registers of the Galvanic Earth-currents were interrupted from 1867 October 25 to 1868 January 30, while the galvanometers were under alteration; and they have been

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finally suspended from the end of April, in anticipation of the change to be mentioned in the next section.

The meteorological instruments have been uninterruptedly at work. There have been no remarkable occasional observations; cloudy weather almost entirely prevented the observation of the November shower of meteors of 1867.

XI.—Reduction of Magnetical and Meteorological Observations :—

In Magnetic Declination, the micrometer-readings for eye-observations are converted into arc to the present time. The adopted meridional reading of Theodolite is computed to 1868, April 29. All other reductions of eye-observations of the three Magnetometers are nearly completed to 1867 Dec. 31; the corrections for temperature are suspended.

The time-scales are laid on all the photographic sheets to 1867 December 31. The new base-lines are drawn to 1866 December 31; and the measures of ordinates at numerous times in every day are read out at the same time.

The absolute measure of horizontal magnetic force is computed from deflexion-observations to 1867 December 31. The observations of dip are reduced to the present time.

For the year 1867, the mean westerly magnetic declination is 20°. 20′. nearly. The mean value of horizontal force is about 3·851 in English units, or 1·776 in French units; the mean dip about 67°. 57′.

The reduction of the Magnetometer-Indications for the period 1858–1863, with reference to diurnal inequalities, solar and lunar, has been generally finished some time past; but it has been impossible for me to command the necessary leisure for their examination till within the last month. I have now, however, completed the discussion of them, and I find the results very remarkable. It is known to the Visitors that, some years ago, I made a similar reduction for the seventeen years 1841–1857, of which the numerical and tabular details are printed in the Greenwich Observations 1859, and the curves representing the diurnal solar inequalities, classified as means for nominal months and means for years, are published in the Philosophical Transactions 1863. It appeared there that the annual curves had gradually undergone a most striking change from 1841 to 1857; the annual mean for 1841, 1842, &c., having the summer character or large-curve character, while those for 1856, 1857, had the winter character or small-curve character. Now the new reductions show that from 1858 to 1863 the opposite change has taken place in the character of the curves, till finally the

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forms of the curves for 1863 do not sensibly differ from those in 1841. There is not the slightest trace of decennial or undecennial period, but rather an absolute negation of it.

The observations have also been very carefully grouped with reference to the Moon's hour-angle; and the mean for every year exhibits the semi-diurnal lunar tide. It occurred to me to group the lunar results for years into classes, distinguished by the large solar curves and the small solar curves mentioned above. And the result is, that, in the years of large solar curves, the lunar semi-diurnal inequality is considerably greater than in the years of small solar curves. In both sets, the combination of the westerly and the northerly inequalities shews that the lunar magnetic tide (which is synchronous for the two ordinates) passes through Greenwich in the direction of a line drawn from the Red Sea to the south of Hudson's Bay.

The cosmical results from these deductions appear to me to be, that magnetic disturbances both solar and lunar are produced mediately by the Earth, and that the Earth in periods of several years undergoes changes which fit it and unfit it for exercising a powerful mediate action.

No progress has been made in the reduction of Magnetic storms through the period 1858– 1863, except in the general selection of days. They exhibit no decennial or undecennial period.

In regard to the Earth-current records, the time-scales are laid down to 1867 December 31. In regard to the reduction of the observations, a step of considerable importance has been taken. I chose seventeen days in the years 1865, 1866, 1867, in which the character of the disturbances was rather bold; the ordinates were measured for a great number of times on each day; and, from the two sets of measures given by the Croydon wire and the Dartford wire, by an easy mathematical process were found the values of the galvanic currents in the directions of magnetic north and magnetic west which would produce the same effect; and, assuming that such currents, or currents equivalent to them, are passing through the earth below the magnetometers, there was no difficulty, on the well-known laws of transversal magnetic action, in inferring the magnetic effect which they would produce. And the result was, that the agreement between the magnetic effects so computed and the magnetic disturbances really recorded by the magnetometers was such as to leave no doubt on the general validity of the explanation of the great storm-disturbances of the magnets as consequences of the galvanic currents through the earth. Still there are some points requiring explanation; and, for better elucidation of the whole subject, the following plan is in preparation:—1°. To make a similar comparison for all the disturbed days since the apparatus was erected:—2°. To examine all the undisturbed days with the view of ascertaining whether there is any clear exhibition of diurnal inequality:—3°. To abandon the use of the old wires, each of which terminated at the Royal Observatory,

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what less than in any preceding year; shewing a continued improvement in chronometers.

The Motor-Clock, and the entire apparatus for maintaining the action of sympathetic Clocks, regulating distant clocks, distributing time-signals through the country, dropping time-signal-balls, firing time-signal-guns, &c., are in a perfectly efficient state. Of the external time-signals, the only one for which I am officially responsible is the Time-Signal-Ball at Deal; to which the galvanic communication is practically difficult. The report on the success of communication is sensibly the same as last year's; on 83·3 per cent. of days, the ball was properly dropped; on 8·2 per cent., in damp weather, the current was assisted by hand; on 4·9 per cent. no current passed; and on 3·6 per cent. the wind was too heavy to permit the raising of the ball.

On the Great Clock of Westminster Palace it will be sufficient to remark that, on 50 per cent. of days of observation its error is less than 1ˢ, and on 96 per cent. it is less than 3ˢ.

For the clocks at the Lombard-Street Post-Office I some years ago arranged an apparatus by which at noon every day a galvanic current from this Observatory seizes the second-hand of the principal clock and turns it round (if necessary) so as to make it point to 0ˢ. This apparatus has been long in action without a failure.

The management of the various business of Chronometers and Time-Signals occupies the entire office-time of one of my most trusted assistants and one intelligent Supernumerary Computer.

No step has been taken by the Government in reference to the establishment of hourly time-signals on the Start Point.

No determination of longitude has been made in the past year. I have desired to commemorate the most important determinations of longitude that have ever been made by the erection of a monolith pillar on the Feagh Main station in Valencia; the point from which longitude is measured eastwardly to Orsk on the frontier of Asia and westwardly to Cambridge in the United States. But the sum demanded by the workers of the quarry was so large that I have taken no further action in this matter.

XIV.—Personal Establishment:—

The personal arrangements of the Observatory are on the following basis. The Astronomer Royal is responsible to the Government and to the Public for every transaction in the Observatory. He is aided by eight Assistants, who are appointed

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(usually on his nomination) by the Board of Admiralty, and whose salaries are defined in the Navy Estimates. A sum of money is intrusted to him by the Admiralty for procuring the services of Supernumerary or Junior Computers; and the selection of persons for that employment and the adjustment of their stipends rest entirely with him.

The establishment of Assistants is the same as at the last Report, namely. Mr. Stone, Fellow of Queens' College, Cambridge, Confidential Assistant; Mr. Glaisher, Mr. Dunkin, Mr. Ellis, Mr. Criswick, Mr. Lynn, Mr. Carpenter, Mr. Nash. Mr. Glaisher and Mr. Nash are engaged exclusively in the Magnetical and Meteorological Deparment; Mr. Ellis is entirely occupied in the morning of every day with the business of Chronometers, Time-Signals, Galvanism, and (occasionally) Money Accounts; Mr. Carpenter's office-time is wholly engrossed with attention to the Library, the Manuscripts, the business of distributing Printed Observations, and other parts of the literary administration. Only Mr. Dunkin (who superintends the Altazimuth work and Transit-Circle adjustments), Mr. Criswick (who controls the Zenith-Distance-reductions), and Mr. Lynn (who superintends the Junior Computers in computations of all kinds, including the whole of the Transit-reductions) have their mornings free for astronomical work. All, however, as well as some of the Junior Computers, are employed in observations; those with the Equatoreal being usually confided to Mr. Carpenter.

There are usually six (at present five) Junior Computers in the Astronomical Department, and three in the Magnetical and Meteorological Department; an additional Computer has lately been taken into employ, that we may be able to proceed with the reduction of the Earth-Current records.

Attached to the Observatory are also a gate-porter, a watchman for the night, and a labourer. No workman is strictly connected with the establishment, although, by custom, we use the services of one leading joiner in particular, and are rarely able to dispense with additional assistance.

As in some former years, we have had the company for a time of some gentlemen who desired to make themselves practically acquainted with the methods followed in this Observatory. Mr. Perry of Stonyhurst College, and Lieutenant Ielagin of the Russian Imperial Navy, have in the past year spent some time here.

XV.—Extraneous Work:—

The reduction of Bradley's observations 1743—1750 has proceeded very far, and Mr. H. Breen has quitted the work. I have collected all the books and papers,

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